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ABSTRACT

This booklet contains Occupational Safety and Health Administration (OSHA) training requirements, excerpted from OSHA standards. The booklet is designed to help employers, safety and health professionals, training directors, and others who need to know training requirements. (Requirements for posting information, warning signs, labels, and the like are excluded, as are most references to the qualifications of people assigned to test workplace conditions or equipment. The first section of the booklet reviews the voluntary training guidelines as a training model for employers, describes the guidelines, and provides information on matching training to employees. This section is followed by an index of training requirements and the training guidelines for five occupational categories. Guidelines are classified as general industry training requirements, maritime training requirements, construction training requirements, agricultural training requirements, and Federal employee training requirements. Training requirements are correlated with applicable sections of law. (KC)

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Training Requirements in OSHA Standards and Training Guidelines

U.S. Department of Labor
William E. Brock, Secretary
Occupational Safety and Health Administration
Patrick R. Tyson, Acting Assistant Secretary
1985

OSHA 2254

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Voluntary Training Guidelines

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Introduction

Many standards promulgated by the Occupational Safety and Health Administration (OSHA) explicitly require the employer to train employees in the safety and health aspects of their jobs. Other OSHA standards make it the employer's responsibility to limit certain job assignments to employees who are "certified," "competent," or "qualified"—meaning that they have had special previous training, in or out of the workplace. The term "designated" personnel means selected or assigned by the employer or the employer's representative as being qualified to perform specific duties. These requirements reflect OSHA's belief that training is an essential part of every employer's program for protecting workers from accidents and illnesses. Many researchers conclude that those who are new on the job have a higher rate of accidents and injuries than more experienced workers. If ignorance of specific job hazards and of proper work practices is even partly to blame for this higher injury rate, then training may help to provide a solution.

The length and complexity of OSHA standards may make it difficult to find all the references to training. So, to help employers, safety and health professionals, training directors and others with a need to know, OSHA's training-related requirements have been excerpted and collected in this booklet. Requirements for posting information, warning signs, labels, and the like are excluded, as are most references to the qualifications of people assigned to test workplace conditions or equipment.

It is usually a good idea for the employer to keep a record of all safety and health training. Records can provide evidence of the employer's good faith and compliance with OSHA standards. Documentation can also supply an answer to one of the first questions an accident investigator will ask: "Was the injured employee trained to do the job?"

Training in the proper performance of a job is time and money well spent, and the employer might regard it as an investment rather than an expense. An effective program of safety and health training for workers can result in fewer accidents and illnesses, better morale, and lower insurance premiums, among other benefits.

Readers with questions concerning worker safety and health training should contact their OSHA Regional Office (see page 10).

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Voluntary Training Guidelines

I. Introduction

The Occupational Safety and Health Act of 1970 does not address specifically the responsibility of employers to provide health and safety information and instruction to employees, although Section 5(a)(2) does require that each employer ". . .shall comply with occupational safety and health standards promulgated under this Act." However, more than 100 of the Act's current standards do contain training requirements.

Therefore, the Occupational Safety and Health Administration has developed voluntary training guidelines to assist employers in providing the safety and health information and instruction needed for their employees to work at minimal risk to themselves, to fellow employees, and to the public.

The guidelines are designed to help employers to: **1)** determine whether a worksite problem can be solved by training; **2)** determine what training, if any, is needed; **3)** identify goals and objectives for the training; **4)** design learning activities; **5)** conduct training; **6)** determine the effectiveness of the training; and **7)** revise the training program based on feedback from employees, supervisors, and others.

The development of the guidelines is part of an agency-wide objective to encourage cooperative, voluntary safety and health activities among OSHA, the business community, and workers. These voluntary programs include training and education, consultation, voluntary protection programs, and abatement assistance.

A. Training Model

The guidelines provide employers with a model for designing, conducting, evaluating, and revising training programs. The training model can be used to develop training programs for a variety of occupational safety and health hazards identified at the workplace. Additionally, it can assist employers in their efforts to meet the training requirements in current or future occupational safety and health standards.

A training program designed in accordance with these guidelines can be used to supplement and enhance the employer's other education and training activities. The guidelines afford employers significant flexibility in the selection of content and training program design. OSHA encourages a personalized approach to the informational and instructional programs at individual worksites, thereby enabling employers to provide the training that is most needed and applicable to local working conditions.

Assistance with training programs or the identification of resources for training is available through such organizations as OSHA full-service Area Offices, State agencies which have their own OSHA-approved occupational safety and health programs, OSHA-funded State onsite consultation programs for employers, local safety councils, the OSHA Office of Training and Education, and OSHA-funded New Directions grantees.

B. Review Commission Implications

OSHA does not intend to make the guidelines mandatory. And they should not be used by employers as a total or complete guide in training and education matters which can result in enforcement proceedings before the Occupational Safety and Health Review Commission. However, employee training programs are always an issue in Review Commission cases which involve alleged violations of training requirements contained in OSHA standards.

The adequacy of employee training may also become an issue in contested cases where the affirmative defense of unpreventable employee misconduct is raised. Under case law well-established in the Commission and the courts, an employer may successfully defend against an otherwise valid citation by demonstrating that all feasible steps were taken to avoid the occurrence of the hazard, and that actions of the employee involved in the violation were a departure from a uniformly and effectively enforced work rule of which the employee had either actual or constructive knowledge.

In either type of case, the adequacy of the training given to employees in connection with a specific hazard is a factual matter which can be decided only by considering all the facts and circumstances surrounding the alleged violation. The general guidelines in this publication are not intended, and cannot be used, as evidence of the appropriate level of training in litigation involving either the training requirements of OSHA standards or affirmative defenses based upon employer training programs.

II. Training Guidelines

OSHA's training guidelines follow a model that consists of:

A. Determining if Training is Needed
B. Identifying Training Needs
C. Identifying Goals and Objectives
D. Developing Learning Activities
E. Conducting the Training
F. Evaluating Program Effectiveness
G. Improving the Program

The model is designed to be one that even the owner of a business with very few employees can use without having to hire a professional trainer or purchase expensive training materials. Using this model, employers or supervisors can develop and administer safety and health training programs that address problems specific to their own business, fulfill the learning needs of their own employees, and strengthen the overall safety and health program of the workplace.

A. Determining if Training is Needed

The first step in the training process is a basic one: to determine whether a problem can be solved by training. Whenever employees are not performing their jobs properly, it is often assumed that training will bring them up to standard. However, it is possible that other actions (such as hazard abatement or the implementation of engineering controls) would enable employees to perform their jobs properly.

Ideally, safety and health training should be provided before problems or accidents occur. This training would cover both general safety and health rules and work procedures, and would be repeated if an accident or near-miss incident occurred.

Problems that can be addressed effectively by training include those that arise from lack of knowledge of a work process, unfamiliarity with equipment, or incorrect execution of a task. Training is less effective (but still can be used) for problems arising from an employee's lack of motivation or lack of attention to the job. Whatever its purpose, training is most effective when designed in relation to the goals of the employer's total safety and health program.

B. Identifying Training Needs

If the problem is one that can be solved, in whole or in part, by training, then the next step is to determine what training is needed. For this, it is necessary to identify *what* the employee is expected to do and in what ways, if any, the employee's performance is deficient. This information can be obtained by conducting a job analysis which pinpoints what an employee needs to know in order to perform a job.

When designing a **new training** program, or preparing to instruct an employee in an unfamiliar procedure or system, a job analysis can be developed by examining engineering data on new equipment or the safety data sheets on unfamiliar substances. The content of the specific Federal or State OSHA standards applicable to a business can also provide direction in developing training content. Another option is to conduct a Job Hazard Analysis (see OSHA 3071, same title, 1981). This is a procedure for studying and recording each step of a job, identifying existing or potential hazards, and determining the best way to perform the job in order to reduce or eliminate the risks. Information obtained from a Job Hazard Analysis can be used as the content for the training activity.

If an employee's learning needs can be met by revising an existing training program rather than developing a new one, or if the employee already has some knowledge of the process or system to be used, appropriate training content can be developed through such means as:

1. Using company accident and injury records to identify how accidents occur and what can be done to prevent them from recurring.

2. Requesting employees to provide, in writing and in their own words, descriptions of their jobs. These should include the tasks performed and the tools, materials and equipment used.

3. Observing employees at the worksite as they perform tasks, asking about the work, and recording their answers.

4. Examining similar training programs offered by other companies in the same industry, or obtaining suggestions from such organizations as the National Safety Council (which can provide information on Job Hazard Analysis), the Bureau of Labor Statistics, OSHA-approved State programs, OSHA full-service Area Offices, OSHA-funded State consultation programs, or the OSHA Office of Training and Education.

The employees themselves can provide valuable information on the training they need. Safety and health hazards can be identified through the employees' responses to such questions as whether anything about their jobs frightens them, if they have had any near-miss incidents, if they feel they are taking risks, or if they believe that their jobs involve hazardous operations or substances.

Once the kind of training that is needed has been determined, it is equally important to determine what kind of training is **not** needed. Employees should be made aware of all the steps involved in a task or procedure, but training should focus on those steps on which improved performance is needed. This avoids unnecessary training and tailors the training to meet the needs of the employees.

C. Identifying Goals and Objectives

Once the employees' training needs have been identified, employers can then prepare objectives for the training. Instructional objectives, if clearly stated, will tell employers what they want their employees to do, to do better, or to stop doing.

Learning objectives do not necessarily have to be written, but in order for the training to be as successful as possible, clear and measurable objectives should be thought-out before the training begins. For an objective to be effective it should identify as precisely as possible what the individuals will do to demonstrate that they have learned, or that the objective has been reached. They should also describe the important conditions under which the individual will demonstrate competence and define what constitutes acceptable performance.

Using specific, action-oriented language, the instructional objectives should describe the preferred practice or skill and its observable behavior. For example, rather than using the statement: "The employee will understand how to use a respirator" as an instructional objective, it would be better to say: "The employee will be able to describe how a respirator works and when it should be used." Objectives are most effective when worded in sufficient detail that other qualified persons can recognize when the desired behavior is exhibited.

D. Developing Learning Activities

Once employers have stated precisely what the objectives for the training program are, then learning activities can be identified and described. Learning activities enable employees to demonstrate that they have acquired the desired skills and knowledge. To ensure that employees transfer the skills or knowledge from the learning activity to the job, the learning situation should simulate the actual job as closely as possible. Thus, employers may want to arrange the objectives and activities in a sequence which corresponds to the order in which the tasks are to be performed on the job, if a specific process is to be learned. For instance, if an employee must learn the beginning processes of using a machine, the sequence might be: **(1)** to check that the power source is connected; **(2)** to ensure that the safety devices are in place and are operative; **(3)** to know when and how to throw the switch; and so on.

A few factors will help to determine the type of learning activity to be incorporated into the training. One aspect is the training resources available to the employer. Can a group training program that uses an outside trainer and film be organized, or should the employer personally train the employees on a one-to-one basis? Another factor is the kind of skills or knowledge to be learned. Is the learning oriented toward physical skills (such as the use of special tools) or toward mental processes and attitudes? Such factors will influence the type of learning activity designed by employers. The training activity can be group-oriented, with lectures, role play, and demonstrations; or designed for the individual as with self-paced instruction.

The determination of methods and materials for the learning activity can be as varied as the employer's imagination and available resources will allow. The employer may want to use charts, diagrams, manuals, slides, films, viewgraphs (overhead transparencies), videotapes, audiotapes, or simply blackboard and chalk, or any combination of these and other instructional aids. Whatever the method of instruction, the learning activities should be developed in such a way that the employees can clearly demonstrate that they have acquired the desired skills or knowledge.

E. Conducting the Training

With the completion of the steps outlined above, the employer is ready to begin conducting the training. To the extent possible, the training should be presented so that its organization and meaning are clear to the employees. To do so, employers or supervisors should: **(1)** provide overviews of the material to be learned; **(2)** relate, wherever possible, the new information or skills to the employees' goals, interests, or experience; and **(3)** reinforce what the employees learned by summarizing the program's objectives and the key points of information covered. These steps will assist employers in presenting the training in a clear, unambiguous manner.

In addition to organizing the content, employers must also develop the structure and format of the training. The content developed for the program, the nature of the workplace or other training site, and the resources available for training will help employers determine for themselves the frequency of training activities, the length of the sessions, the instructional techniques, and the individual(s) best qualified to present the information.

In order to be motivated to pay attention and learn the material that the employer or supervisor is presenting, employees must be convinced of the importance and relevance of the material. Among the ways of developing motivation are: **(1)** explaining the goals and objectives of instruction; **(2)** relating the training to the interests, skills, and experiences of the employees; **(3)** outlining the main points to be presented during the training session(s); and **(4)** pointing out the benefits of training (e.g., the employee will be better informed, more skilled, and thus more valuable both on the job and on the labor market; or the employee will, if he or she applies the skills and knowledge learned, be able to work at reduced risk).

An effective training program allows employees to participate in the training process and to practice their skills or know[illegible]. This will help to ensure that they are learning the required knowledge or skills and p[illegible] correction if necessary. Employees can become involved in the training process by parti[illegible]ng in discussions, asking questions, contributing their knowledge and expertise, learning through hands-on experiences, and through role-playing exercises.

F. Evaluating Program Effectiveness

To make sure that the training program is accomplishing its goals, an evaluation of the training can be valuable. Training should have, as one of its critical components, a method of measuring the effectiveness of the training. A plan for evaluating the training session(s), either written or thought-out by the employer, should be developed when the course objectives and content are developed. It should not be delayed until the training has been completed. Evaluation will help employers or supervisors determine the amount of learning achieved and whether an employee's performance has improved on the job. Among the methods of evaluating training are: **(1) Student opinion.** Questionnaires or informal discussions with employees can help employers determine the relevance and appropriateness of the training program; **(2) Supervisors' observations.** Supervisors are in good positions to observe an employee's performance both before and after the training and note improvements

or changes; and **(3) Workplace improvements.** The ultimate success of a training program may be changes throughout the workplace that result in reduced injury or accident rates.

However it is conducted, an evaluation of training can give employers the information necessary to decide whether or not the employees achieved the desired results, and whether the training session should be offered again at some future date.

G. Improving the Program

If, after evaluation, it is clear that the training did not give the employees the level of knowledge and skill that was expected, then it may be necessary to revise the training program or provide periodic retraining. At this point, asking questions of employees and of those who conducted the training may be of some help. Among the questions that could be asked are: **(1)** Were parts of the content already known and, therefore, unnecessary? **(2)** What material was confusing or distracting? **(3)** Was anything missing from the program? **(4)** What did the employees learn, and what did they fail to learn?

It may be necessary to repeat steps in the training process, that is, to return to the first steps and retrace one's way through the training process. As the program is evaluated, the employer should ask: **(1)** If a job analysis was conducted, was it accurate? **(2)** Was any critical feature of the job overlooked? **(3)** Were the important gaps in knowledge and skill included? **(4)** Was material already known by the employees intentionally omitted? **(5)** Were the instructional objectives presented clearly and concretely? **(6)** Did the objectives state the level of acceptable performance that was expected of employees? **(7)** Did the learning activity simulate the actual job? **(8)** Was the learning activity appropriate for the kinds of knowledge and skills required on the job? **(9)** When the training was presented, was the organization of the material and its meaning made clear? **(10)** Were the employees motivated to learn? **(11)** Were the employees allowed to participate actively in the training process? **(12)** Was the employer's evaluation of the program thorough?

A critical examination of the steps in the training process will help employers to determine where course revision is necessary.

III. Matching Training to Employees

While all employees are entitled to know as much as possible about the safety and health hazards to which they are exposed, and employers should attempt to provide all relevant information and instruction to all employees, the resources for such an effort frequently are not, or are not believed to be, available. Thus, employers are often faced with the problem of deciding who is in the greatest need of information and instruction.

One way to differentiate between employees who have priority needs for training and those who do not is to identify employee populations which are at higher levels of risk. The nataure of the work will provide an indication that such groups should receive priority for information on occupational safety and health risks.

A. Identifying Employees at Risk

One method of identifying employee populations at high levels of occupational risk (and thus in greater need of safety and health training) is to pinpoint hazardous occupations. Even within industries which are hazardous in general, there are some employees who operate at greater risk than others. In other cases the hazardousness of an occupation is influenced by the conditions under which it is performed, such as noise, heat or cold, or safety or health hazards in the surrounding area. In these situations, employees should be trained not only on how to perform their job safely but also on how to operate within a hazardous environment.

A second method of identifying employee populations at high levels of risk is to examine the incidence of accidents and injuries, both within the company and within the industry. If employees in certain occupational categories are experiencing higher accident and injury rates than other employees, training may be one way to reduce that rate. In addition, thorough accident investigation can identify not only specific employees who could benefit from training but also identify company-wide training needs.

Research has identified the following variables as being related to a disproportionate share of injuries and illnesses at the worksite on the part of employees:

1. The age of the employee (younger employees have higher incidence rates).

2. The length of time on the job (new employees have higher incidence rates).

3. The size of the firm (in general terms, medium-size firms have higher incidence rates than smaller or larger firms).

4. The type of work performed (incidence and severity rates vary significantly by SIC Code).

5. The use of hazardous substances (by SIC Code).

These variables should be considered when identifying employee groups for training in occupational safety and health.

In summary, information is readily available to help employers identify which employees should receive safety and health information, education and training, and who should receive it before others. Employers can request assistance in obtaining information by contacting such organizations as OSHA Area Offices, the Bureau of Labor Statistics, OSHA-approved State programs, State onsite consultation programs, the OSHA Office of Training and Education, or local safety councils.

B. Training Employees at Risk

Determining the content of training for employee populations at higher levels of risk is similar to determining what any employee needs to know, but more emphasis is placed on the requirements of the job and the possibility of injury. One useful tool for determining training content from job requirements is the Job Hazard Analysis described earlier. This procedure examines each step of a job, identifies existing or potential hazards, and determines the best way to perform the job in order to reduce or eliminate the hazards. Its key elements are: **(1)** job description; **(2)** job location; **(3)** key steps (preferably in the order in which they are performed); **(4)** tools, machines and materials used; **(5)** actual and potential safety and health hazards associated with these key job steps; and **(6)** safe and healthful practices, apparel, and equipment required for each job step.

Material Safety Data Sheets (MSDS) can also provide information for training employees in the safe use of materials. These data sheets, developed by chemical manufacturers and importers, are supplied with manufacturing or construction materials and describe the ingredients of a product, its hazards, protective equipment to be used, safe handling procedures, and emergency first-aid responses. The information contained in these sheets can help employers identify employees in need of training (i.e., workers handling substances described in the sheets) and train employees in safe use of the substances. Material Safety Data Sheets are generally available from suppliers, manufacturers of the substance, large employers who use the substance on a regular basis, or they can be developed by employers or trade associations. MSDS are particularly useful for those employers who are developing training on chemical use as required by OSHA's Hazard Communication Standard.

IV. Conclusion

In an attempt to assist employers with their occupational health and safety training activities, OSHA has developed a set of training guidelines in the form of a model. This model is designed to help employers develop instructional programs as part of their total education and training effort. The model addresses the questions of who should be trained, on what topics, and for what purposes. It also helps employers determine how effective the program has been and enables them to identify employees who are in greatest need of education and training. The model is general enough to be used in any area of occupational safety and health training, and allows employers to determine for themselves the content and format of training. Use of this model in training activities is just one of many ways that employers can comply with the OSHA standards that relate to training and enhance the safety and health of their employees.

Suggested Readings in Industrial Safety and Health Training

"OSHA Publications and Audiovisual Programs," OSHA 2019, OSHA Publications Distribution Office, U.S. Department of Labor, Room S-4203, Washington, DC 20210

"OSHA Safety and Health Training Guidelines for General Indusry" (PB-239-310/AS), National Technical Information Service, Springfield, VA 22161

"OSHA Safety and Health Training Guidelines for Maritime Employment" (PB-239-311/AS), National Technical Information Service, Springfield, VA 22161

"OSHA Safety and Health Training Guidelines for Construction" (PB-239-312/AS), National Technical Information Service, Springfield, VA 22161

Kirkpatrick, Donald L., "A Practical Guide for Supervisory Training and Development," Pages 158-161, 1983, Second Edition, Addison-Wesley Publishing Co., Reading, MA 01867

Mager, Robert F., "Preparing Instructional Objectives," 1984, Second Edition, David S. Lake Publishers, 19 Davis Drive, Belmont, CA 94002

"Supervisors Safety Manual," 1978, Fifth Edition, National Safety Council, Chicago, IL 60611

"1984 Reference List of Audiovisual Materials," National Audiovisual Center, Washington, DC 20409

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*These states and territories operate their own OSHA-approved job safety and health programs (except Connecticut whose plan covers public employees only).

Training Requirements

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General Industry Training Requirements

The following training requirements have been excerpted from Title 29, Code of Federal Regulations Part 1910. Note that additional training requirements may appear in certain other standards (ANSI, NFPA, etc.) adopted by reference in Part 1910 and therefore mandatory.

Subject and Standard Number	Training Requirement
Employee Emergency Plans and Fire Prevention Plans 1910.38(a)(5)(i), (ii), and (iii)	**(i)** Before implementing the emergency action plan, the employer shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees. **(ii)** The employer shall review the plan with each employee covered by the plan at the following times: **(a)** Initially when the plan is developed, **(b)** Whenever the employee's responsibilities or designated actions under the plan change, and **(c)** Whenever the plan is changed. **(iii)** The employer shall review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and made available for employee review. For those employers with 10 or fewer employees the plan may be communicated orally to employees and the employer need not maintain a written plan.
1910.38(b)(4)(i) and (ii)	**(i)** The employer shall apprise employees of the fire hazards of the materials and processes to which they are exposed. **(ii)** The employer shall review with each employee upon initial assignment those parts of the fire prevention plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept in the workplace and made available for employee review. For those employers with 10 or fewer employees, the plan may be communicated orally to employees and the employer need not maintain a written plan.
Manlifts 1910.68(e)(1)	**(1)** Frequency. All manlifts shall be inspected by a competent designated person at intervals of not more than 30 days. Limit switches shall be checked weekly. Manlifts found to be unsafe shall not be operated until properly repaired.
Ventilation 1910.94(d)(9)(i) and (vi)	**(i)** All employees working in and around open-surface tank operations must be instructed as to the hazards of their respective jobs, and in the personal protection and first aid procedures applicable to these hazards. **(vi)** . . . Respirators shall be approved by the U.S. Bureau of Mines, U.S. Department of the Interior [see 30 CFR Part II] and shall be selected by a competent industrial hygienist or other technically qualified source. Respirators shall be used in accordance with §1910.134, and persons who may require them shall be trained in their use.

1910.94(d)(11)(v) and (vi)

(v) If, in emergencies, such as rescue work, it is necessary to enter a tank which may contain a hazardous atmosphere, suitable respirators, such as self-contained breathing apparatus; hose mask with blower, if there is a possibility of oxygen deficiency; or a gas mask, selected and operated in accordance with paragraph **(d)(9)(vi)** of this section, shall be used. If a containment in the tank can cause dermatitis, or be absorbed through the skin, the employee entering the tank shall also wear protective clothing. At least one trained standby employee, with suitable respirator, shall be present in the nearest uncontaminated area. The standby employee must be able to communicate with the employee in the tank and be able to haul him out of the tank with a lifeline if necessary.

(vi) Maintenance work requiring welding or open flame, where toxic metal fumes such as cadmium, chromium, or lead may be evolved, shall be done only with sufficient local exhaust ventilation to prevent the creation of a health hazard, or be done with respirators selected and used in accordance with subparagraph **(9)(vi)** of this paragraph. Welding, or the use of open flames near any solvent cleaning equipment shall be permitted only after such equipment has first been thoroughly cleared of solvents and vapors.

Occupational Noise Exposure
1910.95(k) and (l)

(k) Training program.

(1) The employer shall institute a training program for all employees who are exposed to noise at or above an 8-hour time-weighted average of 85 decibels, and shall ensure employee participation in such program.

(2) The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

(3) The employer shall ensure that each employee is informed of the following:

(i) The effects of noise on hearing;

(ii) The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and

(iii) The purpose of audiometric testing, and an explanation of the test procedures.

(l) Access to information and training materials.

(1) The employer shall make available to affected employees or their representatives copies of this standard and shall also post a copy in the workplace.

(2) The employer shall provide to affected employees any informational materials pertaining to the standard that are supplied to the employer by the Assistant Secretary.

(3) The employer shall provide, upon request, all materials related to the employer's training and education program pertaining to this standard to the Assistant Secretary and the Director.

Ionizing Radiation
1910.96(f)(3)(viii)

(viii) All employees whose work may necessitate their presence in an area covered by the signal shall be made familiar with the actual sound of the signal—preferably as it sounds at their work location. Before placing the system into operation, all employees normally working in the area shall be made acquainted with the signal by actual demonstration at their work locations.

1910.96(i)(2)

(2) All individuals working in or frequenting any portion of a radiation area shall be informed of the occurrence of radioactive materials or of radiation in such portions of the radiation area; shall be instructed in the safety problems associated with exposure to such materials or radiation and in precautions or devices to minimize exposure; shall be instructed in the applicable provisions of this section for the protection of employees from exposure to radiation or radioactive materials; and shall be advised of reports of radiation exposure which employees may request pursuant to the regulations in this section.

Hydrogen
1910.103(c)(4)(ii)

(ii) Attendant. A qualified person shall be in attendance at all times while the mobile hydrogen supply unit is being unloaded.

Flammable and Combustible Liquids 1910.106(b)(5)(vi)(v) (2) and (3)	**(2)** That detailed printed instructions of what to do in flood emergencies are properly posted. **(3)** That station operators and other employees depended upon to carry out such instructions are thoroughly informed as to the location and operation of such valves and other equipment necessary to effect these requirements.
Explosives and Blasting Agents 1910.109(d)(1)(iii)	**(iii)** Explosives shall not be transferred from one vehicle to another within the confines of any jurisdiction (city, county, State, or other area) without informing the fire and police departments thereof. In the event of breakdown or collision the local fire and police departments shall be promptly notified to help safeguard such emergencies. Explosives shall be transferred from the disabled vehicle to another only when proper and qualified supervision is provided.
1910.109(d)(2)(iii)(b)	**(b)** Extinguishers shall be filled and ready for immediate use and located near the driver's seat. Extinguishers shall be examined periodically by a competent person.
1910.109(d)(3)(i)	**(i)** Vehicles transporting explosives shall only be driven by and be in the charge of a driver who is familiar with the traffic regulations, State laws, and the provisions of this section.
1910.109(d)(3)(iii)	**(iii)** Every motor vehicle transporting any quantity of Class A or Class B explosives shall, at all times, be attended by a driver or other attendant of the motor carrier. This attendant shall have been made aware of the class of the explosive material in the vehicle and of its inherent dangers, and shall have been instructed in the measures and procedures to be followed in order to protect the public from those dangers. He shall have been made familiar with the vehicle he is assigned, and shall be trained, supplied with the necessary means, and authorized to move the vehicle when required.
1910.109(g)(3)(iii)(a)	**(iii)(a)** The operator shall be trained in the safe operation of the vehicle together with its mixing, conveying, and related equipment. The employer shall assure that the operator is familiar with the commodities being delivered and the general procedure for handling emergency situations.
1910.109(g)(3)(iv)(c)	**(c)** A qualified person shall evaluate all systems to determine if they will adequately dissipate static under potential field conditions.
1910.109(g)(5)(vii)	**(vii)** Every warehouse used for the storage of blasting agents shall be under the supervision of a competent person.
1910.109(g)(6)(ii)	**(ii)** Vehicles transporting blasting agents shall only be driven by and be in charge of a driver in possession of a valid motor vehicle operator's license. Such a person shall also be familiar with the States vehicle and traffic laws.
1910.109(h)(4)(i)(a)	**(a)** Vehicles used over public highways for the bulk transportation of water gels or of ingredients classified as dangerous commodities shall meet the requirements of the Department of Transportation and shall meet the requirements of paragraphs (d) and (g)(6) of this section.
Storage and Handling of Liquefied Petroleum Gases 1910.110(b)(16)	**(16)** Instructions. Personnel performing installation, removal, operation, and maintenance work shall be properly trained in such function.
1910.110(d)(12)(i)	**(i)** When standard watch service is provided, it shall be extended to the LP-Gas installation and personnel properly trained.
1910.110(h)(11)(vii)	**(vii)** The dispensing of LP-Gas into the fuel container of a vehicle shall be performed by a competent attendant who shall remain at the LP-Gas dispenser during the entire transfer operation.
Storage and Handling of Anhydrous Ammonia 1910.111(b)(1)(iv)	**(iv)** It is a custom-designed and custom-built unit, which no nationally recognized testing laboratory, or Federal, State, municipal or local authority responsible for the enforcement of a Federal, State, municipal, or local law, code or regulation pertaining to the storage, transportation and use of anhydrous ammonia is willing to undertake to accept, certify, list, label or determine to be safe, and the employer has on file a document attesting to its safe condition following the conduct of appropriate tests. The document shall be signed by a registered professional engineer or other person having special training or experience sufficient to permit him to form an opinion as to safety of the unit involved. The document shall set forth the test bases, test data and results, and also the qualifications of the certifying person.

1910.111(b)(10)(i)	(i) Personnel required to handle ammonia should be trained in safe operating practices and in the proper action to take in the event of emergencies.
1910.111(b)(13)(ii)	(ii) The employer shall insure that unloading operations are performed by reliable persons properly instructed and given the authority to monitor careful compliance with all applicable procedures.
Respiratory Protection 1910.134(a)(3)	(3) The employee shall use the provided respiratory protection in accordance with instructions and training received.
1910.134(b)(3)	(3) The user shall be instructed and trained in the proper use of respirators and their limitations.
1910.134(e)(2), (3), (4), and (5)(i)	(2) The correct respirator shall be specified for each job. The respirator type is usually specified in the work procedures by a qualified individual supervising the respiratory protective program. The individual issuing them shall be adequately instructed to insure that the correct respirator is issued. Each respirator permanently assigned to an individual should be durably marked to indicate to whom it was assigned. This mark shall not affect the respirator performance in any way. The date of issuance should be recorded. (3) Written procedures shall be prepared covering safe use of respirators in dangerous atmospheres that might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available respirators. (4) Respiratory protection is no better than the respirator in use, even though it is worn conscientiously. Frequent random inspections shall be conducted by a qualified individual to assure that respirators are properly selected, used, cleaned, and maintained. (5) For safe use of any respirator, it is essential that the user be properly instructed in its selection, use, and maintenance. Both supervisors and workers shall be so instructed by competent persons. Training shall provide the men an opportunity to handle the respirator, have it fitted properly, test its face-piece-to-face seal, wear it in normal air for a long familiarity period, and, finally, to wear it in a test atmosphere. (i) Every respirator wearer shall receive fitting instructions including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly. Respirators shall not be worn when conditions prevent a good face seal. Such conditions may be a growth of beard, sideburns, a skull cap that projects under the facepiece, or temple pieces on glasses. Also, the absence of one or both dentures can seriously affect the fit of a facepiece. The worker's diligence in observing these factors shall be evaluated by periodic check. To assure proper protection, the facepiece fit shall be checked by the wearer each time he puts on the respirator. This may be done by following the manufacturer's facepiece fitting instructions.
Temporary Labor Camps 1910.142(k)(1) and (2)	(1) Adequate first aid facilities approved by a health authority shall be maintained and made available in every labor camp for the emergency treatment of injured persons. (2) Such facilities shall be in charge of a person trained to administer first aid and shall be readily accessible for use at all times.
Specifications For Accident Prevention Signs and Tags 1910.145(c)(1)(ii), (2)(ii) and (3)	(1)(ii) All employees shall be instructed that danger signs indicate immediate danger and that special precautions are necessary. (2)(ii) All employees shall be instructed that caution signs indicate a possible hazard against which proper precautions should be taken. (3) Safety instruction signs. Safety instruction signs shall be used where there is a need for general instructions and suggestions relative to safety measures.
Medical Services and First Aid 1910.151(a) and (b)	(a) The employer shall insure the ready availability of medical personnel for advice and consultation on matters of plant health. (b) In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid. First aid supplies approved by the consulting physician shall be readily available.

Fire Brigades 1910.156(c)

(c) Training and education.

(1) The employer shall provide training and education for all fire brigade members commensurate with those duties and functions that fire brigade members are expected to perform. Such training and education shall be provided to fire brigade members before they perform fire brigade emergency activities. Fire brigade leaders and training instructors shall be provided with training and education which is more comprehensive than that provided to the general membership of the fire brigade.

(2) The employer shall assure that training and education is conducted frequently enough to assure that each member of the fire brigade is able to perform the member's assigned duties and functions satisfactorily and in a safe manner so as not to endanger fire brigade members or other employees. All fire brigade members shall be provided with training at least annually. In addition, fire brigade members who are expected to perform interior structural fire fighting shall be provided with an education session or training at least quarterly.

(3) The quality of the training and education program for fire brigade members shall be similar to those conducted by such fire training schools as the Maryland Fire and Rescue Institute; Iowa Fire Service Extension; West Virginia Fire Service Extension; Georgia Fire Academy, New York State Department, Fire Prevention and Control; Louisiana State University Firemen Training Program, or Washington State's Fire Service Training Commission for Vocational Education. (For example, for the oil refinery industry, with its unique hazards, the training and education program for those fire brigade members shall be similar to those conducted by Texas A & M University, Lamar University, Reno Fire School, or the Delaware State Fire School.)

(4) The employer shall inform fire brigade members about special hazards such as storage and use of flammable liquids and gases, toxic chemicals, radioactive sources, and water reactive substances, to which they may be exposed during fire and other emergencies. The fire brigade members shall also be advised of any changes that occur in relation to the special hazards. The employer shall develop and make available for inspection by fire brigade members, written procedures that describe the actions to be taken in situations involving the special hazards and shall include these in the training and education program.

Paragraph 5 of Appendix A To Subpart L Fire Protection 1910.156

5. Training and education. The paragraph on training and education does not contain specific training and education requirements because the type, amount, and frequency of training and education will be as varied as are the purposes for which fire brigades are organized. However, the paragraph does require that training and education be commensurate with those functions that the fire brigade is expected to perform; i.e., those functions specified in the organizational statement. Such a performance requirement provides the necessary flexibility to design a training program which meets the needs of individual fire brigades.

At a minimum, hands-on training is required to be conducted annually for all fire brigade members. However, for those fire brigade members who are expected to perform interior structural fire fighting, some type of training or education session must be provided at least quarterly.

In addition to the required hands-on training, it is strongly recommended that fire brigade members receive other types of training and education such as: classroom instruction, review of emergency action procedures, pre-fire planning, review of special hazards in the workplace, and practice in the use of self-contained breathing apparatus.

It is not necessary for the employer to duplicate the same training or education that a fire brigade member receives as a member of a community volunteer fire department, rescue squad, or similar organization. However, such training or education must have been provided to the fire brigade member within the past year and it must be documented that the fire brigade member has received the training or education. For example: there is no need for a fire brigade member to receive another training class in the use of positive-pressure self-contained breathing apparatus if the fire brigade member has recently completed such training as a member of a community fire department. Instead, the fire brigade member should receive training or education covering other important equipment or duties of the fire brigade as they relate to the workplace hazards, facilities and processes.

It is generally recognized that the effectiveness of fire brigade training and education depends upon the expertise of those providing the training and education as well as the

motivation of the fire brigade members. Fire brigade training instructors must receive a higher level of training and education than the fire brigade members they will be teaching. This includes being more knowledgeable about the functions to be performed by the fire brigade and the hazards involved. The instructors should be qualified to train fire brigade members and demonstrate skills in communication, methods of teaching, and motivation. It is important for instructors and fire brigade members alike to be motivated toward the goal of the fire brigade and be aware of the importance of the service that they are providing for the protection of other employees and the workplace.

It is suggested that publications from the International Fire Service Training Association, the National Fire Protection Association (NFPA-1041), the International Society of Fire Service Instructors and other fire training sources be consulted for recommended qualifications of fire brigade training instructors.

In order to be effective, fire brigades must have competent leadership and supervision. It is important for those who supervise the fire brigade during emergency situations, e.g., fire brigade chiefs, leaders, etc., to receive the necessary training and education for supervising fire brigade activities during these hazardous and stressful situations. These fire brigade members with leadership responsibilities should demonstrate skills in strategy and tactics, fire suppression and prevention techniques, leadership principles, pre-fire planning, and safety practices. It is again suggested that fire service training sources be consulted for determining the kinds of training and education which are necessary for those with fire brigade leadership responsibilities.

It is further suggested that fire brigade leaders and fire brigade instructors receive more formalized training and education on a continuing basis by attending classes provided by such training sources as universities and university fire extension services.

The following recommendations should not be considered to be all of the necessary elements of a complete comprehensive training program, but the information may be helpful as a guide in developing a fire brigade training program.

All fire brigade members should be familiar with exit facilities and their location, emergency escape routes for handicapped workers, and the workplace "emergency action plan."

In addition, fire brigade members who are expected to control and extinguish fires in the incipient stage should, at a minimum, be trained in the use of fire extinguishers, standpipes, and other fire equipment they are assigned to use. They should also be aware of first aid medical procedures and procedures for dealing with special hazards to which they may be exposed. Training and education should include both classroom instruction and actual operation of the equipment under simulated emergency conditions. Hands-on type training must be conducted at least annually but some functions should be reviewed more often.

In addition to the above training, fire brigade members who are expected to perform emergency rescue and interior structural fire fighting should, at a minimum, be familiar with the proper techniques in rescue and fire suppression procedures. Training and education should include fire protection courses, classroom training, simulated fire situations including "wet drills" and, when feasible, extinguishment of actual mock fires. Frequency of training or education must be at least quarterly, but some drills or classroom training should be conducted as often as monthly or even weekly to maintain the proficiency of fire brigade members.

There are many excellent sources of training and education that the employer may want to use in developing a training program for the workplace fire brigade. These sources include publications, seminars, and courses offered by universities.

There are also excellent fire school courses by such facilities as Texas A and M University, Delaware State Fire School, Lamar University, and Reno Fire School, that deal with those unique hazards which may be encountered by fire brigades in the oil and chemical industry. These schools, and others, also offer excellent training courses which would be beneficial to fire brigades in other types of industries. These courses should be a continuing part of the training program, and employers are strongly encouraged to take advantage of these excellent resources.

It is also important that fire brigade members be informed about special hazards to which they may be exposed during fire and other emergencies. Such hazards as storage and use areas of flammable liquids and gases, toxic chemicals, water-reactive substances, etc., can pose difficult problems. There must be written procedures developed that describe the

actions to be taken in situations involving special hazards. Fire brigade members must be trained in handling these special hazards as well as keeping abreast of any changes that occur in relation to these special hazards.

Portable Fire Extinguishers 1910.157(g)

(g) Training and education.

(1) Where the employer has provided portable fire extinguishers for employee use in the workplace, the employer shall also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.

(2) The employer shall provide the education required in paragraph (g)(1) of this section upon initial employment and at least annually thereafter.

(3) The employer shall provide employees who have been designated to use fire fighting equipment as part of an emergency action plan with training in the use of the appropriate equipment.

(4) The employer shall provide the training required in paragraph (g)(3) of this section upon initial assignment to the designated group of employees and at least annually thereafter.

Fixed Extinguishing Systems 1910.160(b)(10)

(10) The employer shall train employees designated to inspect, maintain, operate, or repair fixed extinguishing systems and annually review their training to keep them up-to-date in the functions they are to perform.

Fire Detection Systems 1910.164(c)(4)

(4) The employer shall assure that the servicing, maintenance and testing of fire detection systems, including cleaning and necessary sensitivity adjustments, are performed by a trained person knowledgeable in the operations and functions of the system.

Safety Relief Devices for Cargo and Portable Tanks Storing Compressed Gases 1910.168(b)(4)(ii)

(ii) Only qualified personnel shall be allowed to service safety relief devices. Any servicing or repairs which require resetting of safety relief valves shall be done only by or after consultation with the valve manufacturer.

Servicing of Single Piece and Multi-Piece Rim Wheels 1910.177(c)(1)(2) and (3). (Includes single piece wheels per Federal Register of February 3, 1984 (pp. 4338-4352) but not tires marked "LT.")

(c) Employee training

(1) The employer shall provide a training program to train and instruct all employees who service multi-piece rim wheels in the hazards involved in servicing multi-piece rim wheels and the safety procedures to be followed.

(i) The employer shall assure that no employee services any multi-piece rim wheel unless the employee has been trained and instructed in correct procedures of mounting, demounting, and all related services, activities, and correct safety precautions for the rim type being serviced, and the safe operating procedures described in paragraph (f) of this section.

(ii) Information to be used in the training program shall include at a minimum, the data contained on the charts and the contents of this standard.

(iii) Where an employer knows or has reason to believe that any of his employees is unable to read and understand the charts or rim manual, the employer shall assure that the employee is instructed concerning the contents of the charts and rim manual in a manner which the employee is able to understand.

(2) The employer shall assure that each employee demonstrates and maintains his ability to service multi-piece rims wheels safely, including performance of the following tasks:

(i) Demounting of tires (including deflation);

(ii) Inspection of wheel components;

(iii) Mounting of tires (including inflation within a restraining device);

(iv) Use of the restraining device;

(v) Handling of wheels;

(vi) Inflation of tires when a wheel is mounted on the vehicle; and

(vii) Installation and removal of wheels.

(3) The employer shall evaluate each employee's ability to perform these tasks and to service multi-piece rim wheels safely and shall provide additional training as necessary to assure that each employee maintains his proficiency.

Powered Industrial Trucks
1910.178(l)

(l) Operator training. Only trained and authorized operators shall be permitted to operate a powered industrial truck. Methods shall be devised to train operators in the safe operation of powered industrial trucks.

Overhead and Gantry Cranes
1910.179(b)(8)

(8) Designated personnel. Only designated personnel shall be permitted to operate a crane covered by this section.

1910.179(l)(3)(i) and (iii)(a)

(i) Any unsafe conditions disclosed by the inspection requirements of paragraph (j) of this section shall be corrected before operation of the crane is resumed. Adjustments and repairs shall be done only by designated personnel.

(iii)(a) Crane hooks showing defects described in paragraph (j)(2)(iii) of this section shall be discarded. Repairs by welding or reshaping are not generally recommended. If such repairs are attempted they shall only be done under competent supervision and the hook shall be tested to the load requirements of paragraph (k)(2) of this section before further use.

1910.179(n)(3)(ix)

(ix) When two or more cranes are used to lift a load one qualified responsible person shall be in charge of the operation. He shall analyze the operation and instruct all personnel involved in the proper positioning, rigging of the load, and the movements to be made.

1910.179(o)(3)

(3) Fire extinguishers. The employer shall insure that operators are familiar with the operation and care of fire extinguishers provided.

Crawler Locomotive and Truck Cranes
1910.180(b)(3)

(3) Designated personnel. Only designated personnel shall be permitted to opeate a crane covered by this section.

1910.180(h)(3)(xii)

(xii) When two or more cranes are used to lift one load, one designated person shall be responsible for the operation. He shall be required to analyze the operation and instruct all personnel involved in the proper positioning, rigging of the load, and the movements to be made.

1910.180(i)(5)(ii)

(ii) Operating and maintenance personnel shall be made familiar with the use and care of the fire extinguishers provided.

Derricks
1910.181(b)(3)

(3) Designated personnel. Only designated personnel shall be permited to operate a derrick covered by this section.

1910.181(h)

(h) Operations of derricks. Derrick operations shall be directed only by the individual specifically designated for that purpose.

1910.181(j)(3)(ii)

(ii) Operating and maintenance personnel shall be familiar with the use and care of the fire extinguishers provided.

Slings
1910.184(d)

(d) Inspections. Each day before being used, the sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

1910.184(e)(3)(iii)

(iii) The thorough inspection of alloy steel chain slings shall be performed by a competent person designated by the employer, and shall include a thorough inspection for wear, defective welds, deformation and increase in length. Where such defects or deterioration are present, the sling shall be immediately removed from service.

Woodworking Machinery Requirements 1910.213(s)(5)	**(5)** Sharpening or tensioning of saw blades or cutters shall be done only by persons of demonstrated skill in this kind of work.
Mechanical Power Presses 1910.217(e)(3)	**(3)** Training of maintenance personnel. It shall be the responsibility of the employer to insure the original and continuing competence of personnel caring for, inspecting, and maintaining power presses.
1910.217(f)(2)	**(2)** Instruction to operators. The employer shall train and instruct the operator in the safe method of work before starting work on any operation covered by this section. The employer shall insure by adequate supervision that correct operating procedures are being followed.
Forging Machines 1910.218(a)(2) (iii)	**(2)** Inspection and maintenance. It shall be the responsibility of the employer to maintain all forge shop equipment in a condition which will ensure continued safe operation. This responsibility includes: **(iii)** Training personnel for the proper inspection and maintenance of forging machinery and equipment.
Welding, Cutting, and Brazing 1910.252(b)(1)(iii)	**(iii)** Instruction. Workmen designated to operate arc welding equipment shall have been properly instructed and qualified to operate such equipment as specified in subparagraph **(4)** of this paragraph.
1910.252(b)(4)(i) and (ix) (a)	**(i)** General. Workmen assigned to operate or maintain arc welding equipment shall be acquainted with the requirements of subparagraphs (b), (d), (e), and (f) of this section; if doing gas-shielded arc welding, also Recommended Safe Practices for Gas-Shielded Arc Welding, A6.1–1966, American Welding Society. **(a)** The operator should report any equipment defect or safety hazard to his supervisor and the use of the equipment shall be discontinued until its safety has been assured. Repairs shall be made only by qualified personnel.
1910.252(c)(1)(i) and (iii)	**(i)** Installation. All equipment shall be installed by a qualified electrician in conformance with Subpart S of this part. . . . **(iii)** Personnel. Workmen designated to operate resistance welding equipment shall have been properly instructed and judged competent to operate such equipment.
1910.252(c)(6)	**(6)** Maintenance. Periodic inspection shall be made by qualified maintenance personnel, and records of the same maintained. The operator shall be instructed to report any equipment defects to his supervisor and the use of the equipment shall be discontinued until safety repairs have been completed.
1910.252(d)(2)(iii)(b)	**(b)** Fire watchers shall have fire extinguishing equipment readily available and be trained in its use. . . .
1910.252(d)(2)(xiii)(c)	**(c)** Insist that cutters or welders and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process.
1910.252(f)(13)	**(13)** First-aid equipment. First-aid equipment shall be available at all times. On every shift of welding operations there should be present employees trained to render first aid. . . .
Pulp, Paper, and Paperboad Mills 1910.261(h)(3)(ii)	**(ii)** Gas masks capable of absorbing chlorine shall be supplied, conveniently placed, and regularly inspected, and workers who may be exposed to chlorine gas shall be instructed in their use.
Laundry Machinery and Operations 1910.264(d)(1)(v)	**(v)** Instruction of employees. Employees shall be properly instructed as to the hazards of their work and be instructed in safe practices, by bulletins, printed rules, and verbal instructions.

Sawmills **1910.265(c)(3)(x)**	**(x)** Lift trucks. Lift trucks shall be designed, constructed, maintained, and operated in accordance with the requirements of §1910.178. [Only trained and authorized operators shall be permitted to operate a powered industrial truck. Methods shall be devised to train operators in the safe operation of powered industrial trucks.]
Pulpwood Logging **1910.266(c)(5)(1) and (ii)**	**(i)** Chain saw operators shall be instructed to inspect the saws daily to assure that all handles and guards are in place and tight, that all controls function properly, and that the muffler is operative.
	(ii) Chain saw operators shall be instructed to follow manufacturer's instructions as to operation adjustment.
1910.266(c)(6)(i), (vi), (vii), (ix), (x)	**(i)** Equipment operators shall be instructed as to the manufacturer's recommendations for equipment operation, maintenance, safe practices, and site operating procedures.
	(vi) The equipment operator shall be instructed to walk completely around machine and assure that no obstacles or personnel are in the area before startup.
	(vii) The equipment operator shall be instructed to start and operate equipment only from the operator's station or from safe area recommended by the manufacturer.
	(ix) The equipment operator shall be instructed to check all controls for proper function and response before starting working cycle.
	(x) The equipment operator shall be instructed to ground or secure all movable elements when not in use.
1910.266(c)(6)(xiii) through (xxi)	**(xiii)** The equipment operator shall be instructed to maintain adequate distance from other equipment and personnel.
	(xiv) Where signalmen are used, the equipment operator shall be instructed to operate the equipment only on signal from the designated signalman and only when signal is distinct and clearly understood.
	(xv) The equipment operator shall be instructed not to operate movable elements (boom, grapple, load, etc.) close to or over personnel.
	(xvi) The equipment operator shall be instructed to signal his intention before operation when personnel are in or near the working area.
	(xvii) The equipment operator shall be instructed to dismount and stand clear for all loading and unloading of this mobile vehicle by other mobile equipment. The dismounted operator shall be visible to loader operator.
	(xviii) The equipment operator shall be instructed to operate equipment in a manner that will not place undue shock loads on wire rope.
	(xix) The equipment operator shall be instructed not to permit riders or observers on the machine unless approved seating and protection is provided.
	(xx) The equipment operator shall be instructed to shut down the engine when the equipment is stopped, apply brake locks and ground moving elements before he dismounts.
	(xxi) The equipment operator shall be instructed, when any equipment is tranported from one job location to another, to transport it on a vehicle of sufficient rated capacity and the equipment shall be properly secured during transit.
1910.266(c)(7)	**(7)** Explosives. Only trained and experienced personnel shall handle or use explosives. Usage shall comply with the requirements of §1910.109.
1910.266(e)(2)(i) and (ii)	**(i)** The feller shall be instructed to plan retreat path and clear path as necessary before cut is started.
	(ii) The feller shall be instructed to appraise situation for dead limbs, the lean of tree to be cut, wind conditions, location of other trees and other hazards and exercise proper precautions before cut is started.

Telecommunications **1910.268(c)**	(c) Training. Employers shall provide training in the various precautions and safe practices described in this section and shall insure that employees do not engage in the activities to which this section applies until such employees have received proper training in the various precautions and safe practices required by this section. However, where the employer can demonstrate that an employee is already trained in the precautions and safe practices required by this section prior to his employment, training need not be provided to that employee in accordance with this section. Where training is required, it shall consist of on-the-job training or classroom-type training or a combination of both. The training program shall include a list of the subject courses and the types of personnel required to receive such instruction. A written description of the training program and a record of employees who have received such training shall be maintained for the duration of the employee's employment and shall be made available upon request to the Assistant Secretary for Occupational Safety and Health. Such training shall, where appropriate, include the following subjects: (1) Recognition and avoidance of dangers relating to encounters with harmful substances, and animal, insect, or plant life. (2) Procedures to be followed in emergency situations, and (3) First aid training, including instruction in artificial respiration.
1910.268(g)(3)(ii)	(ii) The employer shall ensure that pole climbers are inspected by a competent person for the following conditions: Fractured or cracked gaffs or leg irons, loose or dull gaffs, broken straps or buckles. If any of these conditions exist, the defect shall be corrected before the climbers are used.
1910.268(g)(3)(iii)	(iii) Pole climbers shall be inspected as required in this paragraph (g)(3) before each day's use and a gaff cut-out test performed at least weekly when in use.
1910.268(h)(1)	(1) The employer shall ensure that no employee nor any material or equipment may be supported or permitted to be supported on any portion of a ladder unless it is first determined, by inspections and checks conducted by a competent person, that such ladder is adequately strong, in good condition, and properly secured in place, as required in Subpart D of this part and as required in this section.
1910.268(j)(1)(i) and (ii)	(i) The employer shall ensure that visual inspections are made of the equipment by a competent person each day the equipment is to be used to ascertain that it is in good condition. (ii) the employer shall ensure that tests shall be made at the beginning of each shift by a competent person to insure the vehicle brakes and operating systems are in proper working condition.
1910.268(j)(4)(iv)(d) and (f)	(d) Only persons trained in the operation of the derrick shall be permitted to operate the derrick. (f) The employer shall ensure that the derrick and its associated equipment are inspected by a competent person at intervals set by the manufacturer but in no case less than once per year. Records shall be maintained including the dates of inspections, and necessary repairs made, if corrective action was required.
1910.268(l)(1)	(1) Employees involved in using high voltages to locate trouble or test cables shall be instructed in the precautions necessary for their own safety, and the safety of other employees.
1910.268(o)(1)(ii), and (o)(3)	(ii) While work is being performed in the manhole, a person with basic first aid training shall be immediately available to render assistance if there is cause for believing that a safety hazard exists, and if the requirements contained in paragraphs (d) (1) and (o) (1)(i) of this section do not adequately protect the employee(s). . . .

(3) Joint power and telecommunication manholes. While work is being performed in a manhole occupied jointly by an electric utility and a telecommunication utility, an employee with basic first aid training shall be available in the immediate vicinity to render emergency assistance as may be required. The employee whose presence is required in the immediate vicinity for the purposes of rendering emergency assistance is not to be precluded from occasionally entering a manhole to provide assistance other than in an emergency. The requirement of this paragraph (o)(3) does not preclude a qualified employee [any worker who by reason of his training and experience has demonstrated his ability to safely perform his duties], working alone, from entering for brief periods of time, a manhole where energized cables or equipment are in service, for the purpose of inspection, housekeeping, taking readings, or similar work if such work can be performed safely.

1910.268(q)(1)(ii)(a)

(ii) Employees engaged in line-clearing operations shall be instructed that:

(a) A direct contact is made when any part of the body touches or contacts an energized conductor, or other energized electrical fixture or apparatus.

1910.268(q)(1)(ii)(b) through (d)

(b) An indirect contact is made when any part of the body touches any object in contact with an energized electrical conductor, or other energized fixture or apparatus.

(c) An indirect contact can be made through conductive tools, tree branches, trucks, equipment, or other objects, or as a result of communications wires, cables, fences, or guy wires being accidentally energized.

(d) Electric shock will occur when an employee, by either direct or indirect contact with an energized conductor, energized tree limb, tools, equipment, or other object, provides a path for the flow of electricity to a grounded object or to the ground itself. Simultaneous contact with two energized conductors will also cause electric shock which may result in serious or fatal injury.

1910.268(q)(2)(ii)

(ii) Only qualified employees [any worker who by reason of his training and experience has demonstrated his ability to safely perform his duties] or trainees, familiar with the special techniques and hazards involved in line clearance, shall be permitted to perform the work if it is found that an electrical hazard exists.

1910.268(q)(2)(iii) and (iv)

(iii) During all tree working operations aloft where an electrical hazard of more than 750V exists, there shall be a second employee [a tree worker who through related training and on-the-job experience is familiar with the special techniques and hazards involved in line clearance] or trainee qualified in line clearance trimming [any worker regularly assigned to a line-clearance tree-trimming crew and undergoing on-the-job training who, in the course of such training, has demonstrated his ability to perform his duties safely at his level of training] within normal voice communication.

(iv) Where tree work is performed by employees qualified in line-clearance tree trimming and trainees qualified in line-clearance tree trimming, the clearances from energized conductors given in Table R-3 shall apply.

Qualifications of Dive Team 1910.410(a)(1) through (4)

(1) Each dive team member shall have the experience or training necessary to perform assigned tasks in a safe and healthful manner.

(2) Each dive team member shall have experience or training in the following:

(i) The use of tools, equipment, and systems relevant to assigned tasks;

(ii) Techniques of the assigned diving mode; and

(iii) Diving operations and emergency procedures.

(3) All dive team members shall be trained in cardiopulmonary resuscitation and first aid (American Red Cross standard course or equivalent).

(4) Dive team members who are exposed to or control the exposure of others to hyperbaric conditions shall be trained in diving-related physics and physiology.

1910.410(b)(1)

(1) Each dive team member shall be assigned tasks in accordance with the employee's experience or training, except that limited additional tasks may be assigned to an employee undergoing training provided that these tasks are performed under the direct supervision of an experienced dive team member.

1910.410(c)(2)	**(2)** The designated person-in-charge shall have experience and training in the conduct of the assigned diving operation.
4-Nitrobiphenyl 1910.1003(e)(5)(i) and (ii) **Alpha-Napthylamine 1910.1004(e)(5)(i) and (ii)** **Methyl Chloromethyl Ether 1910.1006(e)(5)(i) and (ii)** **3,3'-Dichlorobenzidine (and its salts) 1910.1007(e)(5)(i) and (ii)** **Bis-Chloromethyl Ether 1910.1008(e)(5)(i) and (ii)** **Beta-Naphthylamine 1910.1009(e)(5)(i) and (ii)** **Benzidine 1910.1010(e)(5)(i) and (ii)** **4-Aminodiphenyl 1910.1011(e)(5)(i) and (ii)** **Ethyleneimine 1910.1012(e)(5)(i) and (ii)** **Beta-Propiolactone 1910.1013(e)(5)(i) and (ii)** **2-Acetylaminofluorene 1910.1014(e)(5)(i) and (ii)** **4-Dimethylamino-azobenzene 1910.1015(e)(5)(i) and (ii)** **N-Nitroso-Dimethylamine 1910.1016(e)(5)(i) and (ii)**	**(i)** Each employee prior to being authorized to enter a regulated area, shall receive a training and indoctrination program including, but not necessarily limited to: **(a)** The nature of the carcinogenic hazards of N-Nitrobiphenyl, and others listed at left, including local and systemic toxicity; **(b)** The specific nature of the operation involving 4-Nitrobiphenyl which could result in exposure; **(c)** The purpose for and application of the medical surveillance program, including, as appropriate, methods of self-examination; **(d)** The purpose for and application of decontamination practices and purposes; **(e)** The purpose for and significance of emergency practices and procedures; **(f)** The employee's specific role in emergency procedures; **(g)** Specific information to aid the employee in recognition and evaluation of conditions and situations which may result in the release of 4-Nitrobiphenyl; **(h)** The purpose for and application of specific first aid procedures and practices; **(i)** A review of this section at the employee's first training and indoctrination program and annually thereafter. **(ii)** Specific emergency procedures shall be prescribed, and posted, and employees shall be familiarized with their terms, and rehearsed in their application.
Vinyl Chloride 1910.1017(j)(1)(i) through (ix)	**(j)** Training. Each employee engaged in vinyl chloride or polyvinyl chloride operations shall be provided training in a program relating to the hazards of vinyl chloride and precautions for its safe use. **(1)** The program shall include: **(i)** The nature of the health hazard from chronic exposure to vinyl chloride including specifically the carcinogenic hazard; **(ii)** The specific nature of operations which could result in exposure to vinyl chloride in excess of the permissible limit and necessary protective steps; **(iii)** The purpose for, proper use, and limitations of respiratory protective devices; **(iv)** The fire hazard and acute toxicity of vinyl chloride, and the necessary protective steps; **(v)** The purpose for and a description of the monitoring program; **(vi)** The purpose for, and a description of, the medical surveillance program; **(vii)** Emergency procedures; **(viii)** Specific information to aid the employee in recognition of conditions which may result in the release of vinyl chloride; and **(ix)** A review of this standard at the employee's first training and indoctrination program, and annually thereafter.

Inorganic Arsenic
1910.1018(o)(1) and (2)

(1) Training program.

(i) The employer shall institute a training program for all employees who are subject to exposure to inorganic arsenic above the action level without regard to respirator use, or for whom there is a possibility of skin or eye irritation from inorganic arsenic. The employer shall assure that those employees participate in the training program.

(ii) The training program shall be provided by October 1, 1978, for employees covered by this provision, at the time of initial assignment for those subsequently covered by this provision, and shall be repeated at least quarterly for employees who have optional use of respirators and at least annually for other covered employees thereafter, and the employer shall assure that each employee is informed of the following:

(A) The information contained in Appendix A;

(B) The quantity, location, manner of use, storage, sources of exposure, and the specific nature of operations which could result in exposure to inorganic arsenic as well as any necessary protective steps;

(C) The purpose, proper use, and limitation of respirators;

(D) The purpose and a description of the medical surveillance program as required by paragraph **(n)** of this section;

(E) The engineering controls and work practices associated with the employee's job assignment; and

(F) A review of this standard.

(2) Access to training materials.

(i) The employer shall make readily available to all affected employees a copy of this standard and its appendixes.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

Lead
1910.1025(l)(1) and (2)

(i) Each employer who has a workplace in which there is a potential exposure to airborne lead at any level shall inform employees of the content of Appendixes A and B of this regulation.

(ii) The employer shall institute a training program for and assure the participation of all employees who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritation exists.

(iii) The employer shall provide initial training by 180 days from the effective date [Editor's Note: OSHA's lead standard became effective February 1, 1979.] for those employees covered by paragraph (l)(1)(ii) on the standard's effective date and prior to the time of initial job assignment for those employees subsequently covered by this paragraph.

(iv) The training program shall be repeated at least annually for each employee.

(v) The employer shall assure that each employee is informed of the following:

(A) The content of this standard and its appendixes;

(B) The specific nature of the operations which could result in exposure to lead above the action level;

(C) The purpose, proper selection, fitting, use, and limitations of respirators;

(D) The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females);

(E) The engineering controls and work practices associated with the employee's job assignment;

(F) The contents of any compliance plan in effect; and

(G) Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician;

(2) Access to information and training materials.

(i) The employer shall make readily available to all affected employees a copy of this standard and its appendixes.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

(iii) In addition to the information required by paragraph (l)(1)(v), the employer shall include as part of the training program, and shall distribute to employees, any materials pertaining to the Occupational Safety and Health Act, the regulations issued pursuant to that Act, and this lead standard, which are made available to the employer by the Assistant Secretary.

Coke Oven Emissions 1910.1029(k)(1) and (2)

(1) Training program.

(i) The employer shall institute a training program for employees who are employed in the regulated area and shall assure their participation.

(ii) The training program shall be provided as of January 27, 1977 for employees who are employed in the regulated area at that time or at the time of initial assignment to a regulated area.

(iii) The training program shall be provided at least annually for all employees who are employed in the regulated area, except that training regarding the occupational safety and health hazards associated with exposure to coke oven emissions and the purpose, proper use, and limitations of respiratory protective devices shall be provided at least quarterly until January 20, 1978.

(iv) The training program shall include informing each employee of:

(a) The information contained in the substance information sheet for coke oven emissions (Appendix A);

(b) The purpose, proper use, and limitations of respiratory protective devices required in accordance with paragraph (g) of this section;

(c) The purpose for and a description of the medical surveillance program required by paragraph (j) of this section including information on the occupational safety and health hazards associated with exposure to coke oven emissions;

(d) A review of all written procedures and schedules required under paragraph (f) of this section; and

(e) A review of this standard.

(2) Access to training materials.

(i) The employer shall make a copy of this standard and its appendixes readily available to all employees who are employed in the regulated area.

(ii) The employer shall provide upon request all materials relating to the employee information and training program to the Secretary and the Director.

Cotton Dust 1910.1043(i)(1) and (2)

(1) Training program.

(i) The employer shall provide a training program for all employees in all workplaces where cotton dust is present, and shall assure that each employee in these workplaces is informed of the following:

(a) The specific nature of the operations which could result in exposure to cotton dust at or above the permissible exposure limit;

(b) The measures, including work practices required by paragraph (g) of this section, necessary to protect the employee from exposures in excess of the permissible exposure limit;

(c) The purpose, proper use and limitations of respirators required by paragraph (f) of this section;

(d) The purpose for and a description of the medical surveillance program required by paragraph **(h)** of this section and other information which will aid exposed employees in understanding the hazards of cotton dust exposures; and

(e) The contents of this standard and its appendixes.

(ii) The training program shall be provided prior to initial assignment and shall be repeated at least annually.

(2) Access to training materials.

(i) Each employer shall post a copy of this section with its appendixes in a public location at the workplace, and shall, upon request, make copies available to employees.

(ii) The employer shall provide all materials relating to the employee training and information program to the Assistant Secretary and the Director upon request.

(iii) In addition to the information required by paragraph (i)(1), the employer shall include as part of the training program, and shall distribute to employees, any materials, pertaining to the Occupational Safety and Health Act, the regulations issued pursuant to that Act, and this cotton dust standard, which are made available to the employer by the Assistant Secretary.

1,2-Dibromo-3-Chloropropane 1910.1044(n)(1) and (2)

(1) Training program.
(i) The employer shall institute a training program for all employees who may be exposed to DBCP and shall assure their participation in such training program.

(ii) The employer shall assure that each employee is informed of the following:

(a) The information contained in Appendix A.

(b) The quantity, location, manner of use, release or storage of DBCP and the specific nature of operations which could result in exposure to DBCP as well as any necessary protective steps;

(c) The purpose, proper use, and limitations of respirators;

(d) The purpose and description of the medical surveillance program required by paragraph (m) of this section; and

(e) A review of this standard, including appendixes.

(2) Access to training materials.

(i) The employer shall make a copy of this standard and its appendixes readily available to all affected employees.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

Acrylonitrile (Vinyl Cyanide) 1910.1045(o)(1) and (2)

(1) Training program.
(i) By January 2, 1979, the employer shall institute a training program for and assure the participation of all employees exposed to AN above the action level, all employees whose exposures are maintained below the action level by engineering and work practice controls, and all employees subject to potential skin or eye contact with liquid AN.

(ii) Training shall be provided at the time of initial assignment, or upon institution of the training program, and at least annually thereafter, and the employer shall assure that each employee is informed of the following:

(A) The information contained in Appendixes A and B [Editor's Note: See Federal Register, Vol. 43, No. 192, Oct. 3, 1978, pp. 45813-45815.];

(B) The quantity, location, manner of use, release, or storage of AN, and the specific nature of operations which could result in exposure to AN, as well as any necessary protective steps;

(C) The purpose, proper use, and limitations of respirators and protective clothing;

(D) The purpose and a description of the medical surveillance program required by paragraph (n) of this section;

(E) The emergency procedures developed, as required by paragraph (i) of this section;

(F) Engineering and work practice controls, their function, and the employee's relationship to these controls; and

(G) A review of this standard.

(2) Access to training materials.

(i) The employer shall make a copy of this standard and its appendixes readily available to all affected employees.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

Hazard Communication 1910.1200(h)(2)

(2) Training. Employee training shall include at least:

(i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

(ii) The physical and health hazards of the chemicals in the work area;

(iii) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to the used; and,

(iv) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

Maritime Training Requirements

The following training requirements have been excerpted from Title 29 Code of Federal Regulations Parts 1915 (Shipyard Employment), 1917 (Marine Terminals), and 1918 (Longshoring).

Note that in addition to these requirements, Part 1910, relating to general industry, also contains applicable training standards.

Part 1915—Shipyard Employment

Subject and Standard Number	Training Requirement
Competent Person 1915.7 (a) and (b)	**(a) Designation.** **(1)** For the purposes of Subparts B, C, D, and H of this part, except for §§1915.35(b)(8) and 1915.36(a)(5), one or more competent persons shall be designated by the employer in accordance with the applicable requirements of this section unless the requirements of Subparts B, C, D, and H of this part are always carried out by a National Fire Protection Association Certified Marine Chemist. **(2)** The employer shall indicate on U.S. Department of Labor Form OSHA 73 "Designation of Competent Person" either those employees designated as competent persons or that the prescribed functions of such persons are always carried out by a National Fire Protection Association Certified Marine Chemist in addition to his professional duties. When additions or changes are made in the personnel so designated, a new Form OSHA 73 shall be executed. A copy of this executed form shall be forwarded to the nearest Area Office of the Occupational Safety and Health Administration. **(b) Criteria.** The following criteria shall guide the employer in designating employees as competent persons: **(1)** Ability to understand the meaning of designations on certificates and of any qualifications relating thereto and to carry out any instructions, either written or oral, left by the National Fire Protection Association Certified Marine Chemist or person authorized by the U.S. Coast Guard referred to in §1915.14. **(2)** Ability to use and interpret the readings of an oxygen indicator and a combustible gas indicator. The ability to use and iterpret the readings of a carbon monoxide indicator and a carbon dioxide indicator, if the operations involved such hazardous gases. **(3)** Familiarity with and understanding of Subparts B, C, D, and H of this part. **(4)** Familiarity with the structure and knowledge of the location and designation of spaces of the types of vessels on which repair work is done. **(5)** Capability to perform the tests and inspections required by Subparts B, C, D, and H of this part and to write the required logs.

Precautions Before Entering
1915.12(a)(1)

(a) Flammable atmospheres and residues.

(1) Before employees are initially permitted to enter any of the ship's spaces designated in paragraphs (a)(1)(i) and (ii) of this section, the atmosphere within the space to be entered shall be tested by a competent person to determine the concentration of flammable vapors or gases within the space.

(i) Cargo spaces or other spaces containing or having last contained combustible or flammable liquids or gases in bulk.

(ii) Spaces immediately adjacent to those described in paragraph (a)(1)(i) of this section.

1915.12(b)(1)

(b) Toxic atmospheres and residues.

(1) Before employees are initially permitted to enter any of the ship's spaces designated in paragraphs (b)(1)(i), (ii), and (iii) of this section, the atmosphere in the space to be entered shall be tested for toxic atmospheric contaminants, and the space inspected for the presence of toxic or corrosive residues by a Marine Chemist, Industrial Hygienist or other person qualified to make these tests and inspections.

(i) Cargo spaces or other spaces containing or having last contained bulk liquids, gases, or solids of a toxic, corrosive, or irritant nature.

(ii) Spaces which have been fumigated.

(iii) Spaces immediately adjacent to those described in paragraphs (b)(1)(i) and (ii) of this section.

1915.12(c)(1)

(c) Oxygen deficient atmospheres.

(1) Before employees are initially permitted to enter any of the ship's spaces designated in paragraphs (c)(1)(i) through (v) of this section, the atmosphere in the spaces to be entered shall be tested by a competent person with an oxygen indicator or other suitable device to ensure that it contains at least 16.5 percent oxygen.

(i) Spaces in which the test required by paragraphs (a) and (b) of this section indicate that no flammable or toxic contaminants are present in the atmosphere.

(ii) Compartments which have been sealed.

(iii) Spaces which have been coated and closed up.

(iv) Nonventilated compartments which have been freshly painted.

(v) Cargo spaces containing cargoes or residues of cargoes which absorb oxygen, such as scrap iron, fresh fruit and molasses, and various vegetable drying oils in bulk.

Cleaning and Other Cold Work
1915.13(a)(3) and (5)

(a) Employees shall be permitted to perform manual cleaning to remove residue materials, scale, and debris or to perform other cold work in spaces described in § 1915.12(a)(1)(i) and (ii) and (b)(1)(i) through (iii) before they have been certified as gas free only under the following conditions:

(3) Tests shall be made by a competent person prior to commencement of cold work and with sufficient frequency thereafter, in accordance with temperature, volatility of the residues and other existing conditions in and about the spaces, to ensure that the concentration stated in paragraph (a)(2) of this section is not exceeded.

(5) Tests shall be made by a competent person to ensure that the exhaust vapors from these spaces are not accumulating in other areas within or around the vessel, marine railway, drydock, graving dock, or under the pier where sources of ignition may be present. Should such accumulations be found, any sources of ignition within the affected area shall be removed or extinguished.

Certification Before Hot Work Is Begun
1915.14(b) and (c)

(b) In dry cargo holds for which a Marine Chemist's certificate is not required by paragraph (a)(2)(ii) of this section, hot work may be performed only after a competent person has carefully examined the hold and found it to be free of flammable liquids, gases, and vapors. If flammable liquids, gases, or vapors are found, hot work shall not be performed within the space until the flammable liquids, gases, or vapors have been removed and a test indicates that the space is safe for fire.

(c) Before hot work is performed in engine room and boiler room spaces of any vessel for which a Marine Chemist's certificate is not required by the provision of paragraph (a) of this section or in fuel tank and engine compartments of boats, the bilges shall be inspected and tested by a competent person to ensure that they are free of flammable liquids, gases, and vapors. If flammable liquids, gases, or vapors are found, hot work shall not be performed within the space until the flammable liquids, gases, or vapors have been removed and a test indicates that the space is safe for fire.

Maintaining Gas Free Conditions
Ship Repairing Only
1915.15(a)(3) and (4)

(3) The employer shall inform masters and chief engineers of vessels of the provisions of this section and shall confirm that they are aware of their responsibilities for seeing that their crews understand and obey all warning signs, tags, and the limitations stated on the marine chemist's certificates.

(4) When conditions in a tank are such that there is a possibility of hazardous vapor being released from residues or other sources after a marine chemist's certificate has been issued, a competent person shall make tests to insure that the gas-free condition is maintained irrespective of whether hot work is being performed in the tank. When the competent person finds that atmospheric conditions have altered, work shall be stopped and a new marine chemist's certificate in accordance with the requirements of § 1915.14(a) shall be obtained before work is resumed.

Shipbreaking only
1915.15 (b)(1) and (2)

(1) During the performance of hot work from open decks or in tanks or compartments from which the overhead has been completely removed, on the boundaries of spaces described in § **1915.14(d)**, other than those filled with water, the competent person shall make frequent tests to ensure that the inert atmosphere is being maintained or that the concentration of flammable vapors remains below ten (10) percent of the lower explosive limit.

(2) When conditions in spaces below decks described in § **1915.14(a)(1)** and (2) are such that there is a possibility of hazardous vapors being released from residues or other sources, after a Marine Chemist's certificate has been issued, a competent person shall make tests to ensure that the gas free condition is maintained irrespective of whether hot work is being performed in or on the aforementioned spaces. When the competent person finds that the atmospheric conditions have altered, work shall be stopped and a new Marine Chemist's certificate in accordance with § **1915.14(a)(1)** and (2) shall be obtained, before work is resumed.

Painting
1915.35(b)(1) and (8)

(b) **Paints and tank coatings dissolved in highly volatile, toxic and flammable solvents.** Several organic coatings, adhesives and resins are dissolved in highly toxic, flammable and explosive solvents with flash points below 80°F. Work involving such materials shall be done only when all of the following special precautions have been taken:

(1) Sufficient exhaust ventilation shall be provided to keep the concentration of solvent vapors below ten (10) percent of the lower explosive limit. Frequent tests shall be made by a competent person to ascertain the concentration.

(8) A competent person shall inspect all power lighting cables to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty (50) feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.

Flammable Liquids
1915.36(a)(2) and (5)

(a) In all cases when liquid solvents, paint and preservative removers, paints or vehicles, other than those covered by § 1915.35(b), are capable of producing a flammable atmosphere under the conditions of use, the following precautions shall be taken:

(2) Ventilation shall be provided in sufficient quantities to keep the concentration of vapors below ten (**10**) percent of their lower explosive limit. Frequent tests shall be made by a competent person to ascertain the concentration.

(5) A competent person shall inspect all power and lighting cables to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty (50) feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.

Fire Prevention
1915.52(a)(3) and (c)

(3) When the welding, cutting, or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire while the actual welding, cutting, or heating operation is being performed and for a sufficient period of time after completion of the work to insure that no possibility of fire exists. Such personnel shall be instructed as to the specific anticipated fire hazards and how the fire fighting equipment provided is to be used.

(c) In all cases, suitable fire extinguishing equipment shall be immediately available in the work area and shall be maintained in a state of readiness for instant use. Personnel assigned to contain fires within controllable limits shall be instructed as to the specific anticipated fire hazards and how the fire fighting equipment provided is to be used. The provisions of this paragraph shall apply to shipbreaking only.

Welding, Cutting and Heating in Way of Preservative Coatings
1915.53(b)

(b) Before welding, cutting or heating is commenced on any surface covered by a preservative coating whose flammability is not known, a test shall be made by a competent person to determine its flammability. Preservative coatings shall be considered to be highly flammable when scrapings burn with extreme rapidity.

1915.53(e)(1)

(e) Before welding, cutting or heating is commenced in enclosed spaces on metals covered by soft and greasy preservatives, the following precautions shall be taken:

(1) A competent person shall test the atmosphere in the space to ensure that it does not contain explosive vapors, since there is a possibility that some soft and greasy preservatives may have flash points below temperatures which may be expected to occur naturally. If such vapors are determined to be present, no hot work shall be commenced until such precautions have been taken as will ensure that the welding, cutting or heating can be performed in safety.

1915.53(f)

(f) Immediately after welding, cutting or heating is commenced in enclosed spaces on metal covered by soft and greasy preservatives, and at frequent intervals thereafter, a competent person shall make tests to ensure that no flammable vapors are being produced by the coatings. If such vapors are determined to be present, the operation shall be stopped immediately and shall not be resumed until such additional precautions have been taken as are necessary to ensure that the operation can be resumed safely.

Welding, Cutting and Heating of Hollow Metal Containers and Structures Not Covered by § 1915.12
1915.54(c)

(c) Before welding, cutting, heating or brazing is begun on structural voids such as skegs, bilge keels, fair waters, masts, booms, support stanchions, pipe stanchions or railings, a competent person shall inspect the object and, if necessary, test it for the presence of flammable liquids or vapors. If flammable liquids or vapors are present, the object shall be made safe.

Gas Welding And Cutting
1915.55(d)(1) Through (6)

(d) **Use of fuel gas.** The employer shall thoroughly instruct employees in the safe use of fuel gas, as follows:

(1) Before connecting a regulator to a cylinder valve, the valve shall be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might otherwise enter the regulator.) The person cracking the valve shall stand to one side of the outlet, not in front of it. The valve of a fuel gas cylinder shall not be cracked where the gas would reach welding work, sparks, flame or other possible sources of ignition.

(2) The cylinder valve shall always be opened slowly to prevent damage to the regulator. To permit quick closing, valves on fuel gas cylinders shall not be opened more than 1½ turns. When a special wrench is required, it shall be left in position on the stem of the valve while the cylinder is in use so that the fuel gas flow can be shut off quickly in case of an emergency. In the case of manifolded or coupled cylinders, at least one such wrench shall always be available for immediate use. Nothing shall be placed on top of a fuel gas cylinder, when in use, which may damage the safety device or interfere with the quick closing of the valve.

(3) Fuel gas shall not be used from cylinders through torches or other devices which are equipped with shutoff valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.

(4) Before a regulator is removed from a cylinder valve, the cylinder valve shall always be closed and the gas released from the regulator.

(5) If, when the valve on a fuel gas cylinder is opened, there is found to be a leak around the valve stem, the valve shall be closed and the gland nut tightened. If this action does not stop the leak, the use of the cylinder shall be discontinued, and it shall be properly tagged and removed from the vessel. In the event that fuel gas should leak from the cylinder valve rather than from the valve stem and the gas cannot be shut off, the cylinder shall be properly tagged and removed from the vessel. If a regulator attached to a cylinder valve will effectively stop a leak through the valve seat, the cylinder need not be removed from the vessel.

(6) If a leak should develop at a fuse plug or other safety device, the cylinder shall be removed from the vessel.

Arc Welding And Cutting 1915.56(d)(1) through (4)

(d) Operating instructions. Employers shall instruct employees in the safe means of arc welding and cutting as follows:

(1) When electrode holders are to be left unattended, the electrodes shall be removed and the holders shall be so placed or protected that they cannot make electrical cantact with employees or conducting objects.

(2) Hot electrode holders shall not be dipped in water, since to do so may expose the arc welder or cutter to electric shock.

(3) When the arc welder or cutter has occasion to leave his work or to stop work for any appreciable length of time, or when the arc welding or cutting machine is to be moved, the power supply switch to the equipment shall be opened.

(4) Any faulty or defective equipment shall be reported to the supervisor.

Uses of Fissionable Material 1915.57(b)

(b) Any activity which involves the use of radioactive material, whether or not under license from the Nuclear Regulatory Commission, shall be performed by competent persons specially trained in the proper and safe operation of such equipment. In the case of materials used under Commission license, only persons actually licensed, or competent persons under direction and supervision of the licensee, shall perform such work.

Scaffolds or Staging 1915.71(b)(7)

(7) No scaffold shall be erected, moved, dismantled or altered except under the supervision of competent persons.

Work on or in the Vicinity of Radar and Radio 1915.95(a)

The provisions of this section shall apply to ship repairing and shipbuilding.

(a) No employees other than radar or radio repairmen shall be permitted to work on masts, king posts or other aloft areas unless the radar and radio are secured or otherwise made incapable of radiation. In either event, the radio and radar shall be appropriately tagged.

Health and Sanitation 1915.97(d)

The provisions of this section shall apply to ship repairing, shipbuilding, and shipbreaking.

(d) The employer shall instruct employees who will be exposed to the hazardous materials as to the nature of the hazards and the means of avoiding them.

First Aid 1915.98(a)

(a) Unless a first aid room and a qualified attendant are close at hand and prepared to render first aid to employees on behalf of the employer, the employer shall furnish a first aid kit for each vessel on which work is being performed, except that when work is being performed on more than one small vessel at one pier, only one kit shall be required. The kit, when required, shall be kept close to the vessel and at least one employee, close at hand, shall be qualified to administer first aid to the injured.

Ropes, Chains and Slings 1915.112(c)(5)

(5) All repairs to chains shall be made under qualified supervision. Links or portions of the chain found to be defective as described in paragraph (c)(4) of this section shall be replaced by links having proper dimensions and made of material similar to that of the chain. Before repaired chains are returned to service, they shall be proof tested to the proof test load recommended by the manufacturer.

Use of Gear 1915.116(1)

(1) An individual who is familiar with the signal code in use shall be assigned to act as a signalman when the hoist operator cannot see the load being handled. Communications shall be made by means of clear and distinct visual or auditory signals except that verbal signals shall not be permitted.

Qualifications of Operators 1915.117(a) and (b)

Paragraph (**a**) of this section shall apply to ship repairing and shipbuilding only. Paragraph (**b**) of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(**a**) When ship's gear is used to hoist materials aboard, a competent person shall determine that the gear is properly rigged, that it is in safe condition, and that it will not be overloaded by the size and weight of the lift.

(**b**) Only those employees who understand the signs, notices, and operating instructions, and are familiar with the signal code in use, shall be permitted to operate a crane, winch, or other power operated hoisting apparatus.

Powder Actuated Fastening Tools 1915.135 (c)(1) through (6)

(**a**) This section shall apply to ship repairing and shipbuilding only.

(**c**) Instruction of operators. Before employees are permitted to use powder actuated tools, they shall have been thoroughly instructed by a competent person with respect to the requirements of paragraph (**b**) of this section and the safe use of such tools as follows:

(**1**) Before using a tool, the operator shall inspect it to determine that it is clean, that all moving parts operate freely and that the barrel is free from obstructions.

(**2**) When a tool develops a defect during use, the operator shall immediately cease to use it and shall notify his supervisor.

(**3**) Tools shall not be loaded until just prior to the intended firing time and the tool shall not be left unattended while loaded.

(**4**) The tool, whether loaded or empty, shall not be pointed at any person, and hands shall be kept clear of the open barrel end.

(**5**) In case of a misfire, the operator shall hold the tool in the operating position for at least 15 seconds and shall continue to hold the muzzle against the work surface during disassembly or opening of the tool and removal of the powder load.

(**6**) Neither tools nor powder charges shall be left unattended in places where they would be available to unauthorized persons.

Internal Combustion Engines, Other than Ship's Equipment 1915.136(c)

(**c**) When internal combustion engines on vehicles, such as forklifts and mobile cranes, or on portable equipment such as fans, generators, and pumps exhaust into the atmosphere below decks, the competent person shall make tests of the carbon monoxide content of the atmosphere as frequently as conditions require to ensure that dangerous concentrations do not develop. Employees shall be removed from the compartment involved when the carbon monoxide concentration exceeds 50 parts per million (0.005%). The employer shall use blowers sufficient in size and number and so arranged as to maintain the concentration below this allowable limit before work is resumed.

Respiratory Protection 1915.152(a)(4)

(**4**) Employees required to use respiratory protective equipment approved for use in atmospheres immediately dangerous to life shall be thoroughly trained in its use. Employees required to use other types of respiratory protective equipment shall be instructed in the use and limitations of such equipment.

1915.152(b)(4)

(**4**) In the vicinity of each vessel in which there is a danger of employees being exposed to an atmosphere immediately dangerous to life, the employer shall have on hand and ready for use respiratory protective equipment approved for such use. When such equipment is required, one or more persons shall be thoroughly trained in the use of the equipment.

Portable Air Receivers and Other Unfired Pressure Vessels 1915.172(b)

(**b**) Portable, unfired pressure vessels, not built to the code requirements of paragraph (a) of this section, and built prior to the effective date of this regulation, shall be examined quarterly by a competent person. They shall be subjected yearly to a hydrostatic pressure test of one and one-half times the working pressure of the vessels.

Fumigants, Pesticides, Insecticides and Hazardous Preservatives 1917.25(e) (2)

(2) Persons entering a space containing a hazardous atmosphere shall be instructed in the nature of the hazard, precautions to be taken, and the use of protective and emergency equipment. Standby observers, similarly equipped and instructed, shall continuously monitor the activity of employees within such a space.

Personnel 1917.27(a) and (b)

(a) Qualifications of machinery operators. **(1)** Only those employees determined by the employer to be competent by reason of training or experience, and who understand the signs, notices and operating instructions and are familiar with the signal code in use shall be permitted to operate a crane, winch or other power operated cargo handling apparatus, or any power operated vehicle, or give signals to the operator of any hoisting apparatus. *Exception:* Employees being trained and supervised by a designated person may operate such machinery and give signals to operators during training.

(b) Supervisory accident prevention proficiency. **(1)** After October 3, 1985 immediate supervisors of cargo-handling operations of more than five (5) persons shall satisfactorily complete a course in accident prevention. Employees newly assigned to supervisory duties after that date shall be required to meet the provisions of this paragraph within ninety (90) days of such assignment.

(2) The course shall consist of instruction suited to the particular operations involved.*

*The following are recommended topics: **(i)** Safety responsibility and authority; **(ii)** elements of accident prevention; **(iii)** attitudes, leadership and motivation; **(iv)** hazards of longshoring, including peculiar local circumstances; **(v)** hazard identification and elimination; **(vi)** applicable regulations; and **(vii)** accident investigations.

General Rules Applicable to Vehicles 1917.44(o)(3)

(3) Employer Training. **(i)** The employer shall ensure that only employees trained in the procedures required in paragraph (p)(4) of this section and who have demonstrated their ability to service multi-piece rim wheels shall be assigned such duties.

(ii) The employer shall ensure that each employee demonstrates his ability to service multipiece rim wheels, including performance of the following tasks.

(A) Tire demounting (including deflation);

(B) Inspection of wheel components;

(C) Mounting of tires;

(D) Inflation of tires, including use of a restraining device;

(E) Handling of wheels;

(F) Inflation of tires when a wheel is mounted on the vehicle; and

(G) Installation and removal of wheels.

Terminal Facilities—Handling Menhaden and Similar Species of Fish 1917.73(d)

(d) The plant superintendent and foremen shall be trained and knowledgeable about the hazards of hydrogen sulfide and oxygen deficiency. They shall be trained in the use of appropriate respiratory and other protective equipment, and in rescue procedures. Other supervisory plant personnel shall be informed of these hazards and instructed in the necessary safety measures, including use of respiratory and rescue equipment.

Welding, Cutting and Heating (hot work) 1917.152(c) (4)

(4) When the hot work operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire during hot work and for a sufficient time after completion of the work to ensure that no fire hazard remains. The employer shall instruct all employees involved in hot work operations as to potential fire hazards and the use of firefighting equipment.

Respiratory Protection 1918.102(a)(4)

(4) Employees required to use respiratory protective equipment shall be instructed in its use.

Construction Training Requirements

The following training requirements have been excerpted from Title 29, Code of Federal Regulations Part 1926. Note that in addition to these requirements, Part 1910, relating to general industry, also contains applicable training standards.

Subject and Standard Number	Training Requirement
General Safety and Health Provisions 1926.20(b)(2) and (4)	(2) Such programs [as may be neccessary to comply with this part] shall provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons [capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who have authorization to take prompt corrective measures to eliminate them] designated by the employers. (4) The employer shall permit only those employees qualified [one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project] by training or experience to operate equipment and machinery.
Safety Training and Education 1926.21(a)	(a) General requirements. The Secretary shall, pursuant to section 107(f) of the Act, establish and supervise programs for the education and training of employers and employees in the recognition, avoidance and prevention of unsafe conditions in employments covered by the Act.
1926.21(b)(1) through (6)	(1) The employer should avail himself of the safety and health training programs the Secretary provides. (2) The employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury. (3) Employees required to handle or use poisons, caustics, and other harmful substances shall be instructed regarding their safe handling and use, and be made aware of the potential hazards, personal hygiene, and personal protective measures required. (4) In job site areas where harmful plants or animals are present, employees who may be exposed shall be instructed regarding the potential hazards and how to avoid injury, and the first aid procedures to be used in the event of injury. (5) Employees required to handle or use flammable liquids, gases, or toxic materials shall be instructed in the safe handling and use of these materials and made aware of the specific requirements contained in Subparts D, F, and other applicable subparts of this part. (6) (i) All employees required to enter into confined or enclosed spaces shall be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment required. The employer shall comply with any specific regulations that apply to work in dangerous or potentially dangerous areas. (6) (ii) For purposes of subdivision (i) of this subparagraph, "confined or enclosed space" means any space having a limited means of egress, which is subject to the accumulation of toxic or flammable contaminants or has an oxygen deficient atmosphere. Confined or enclosed spaces include, but are not limited to, storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, pipelines, and open top spaces more than 4 feet in depth such as pits, tubs, vaults, and vessels.

Medical Services and First Aid **1926.50(c)**	(c) In the absence of an infirmary, clinic, hospital, or physician that is reasonably accessible in terms of time and distance to the worksite which is available for the treatment of injured employees, a person who has a valid certificate in first aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.
Ionizing Radiation **1926.53(b)**	(b) Any activity which involves the use of radioactive materials or X-rays, whether or not under license from the Atomic Energy Commission, [Nuclear Regulatory Commission] shall be performed by competent persons specially trained in the proper and safe operation of such equipment. In the case of materials used under Commission license, only persons actually licensed, or competent persons under the direction and supervision of the licensee, shall perform such work.
Nonionizing Radiation **1926.54(a) and (b)**	(a) Only qualified and trained employees shall be assigned to install, adjust and operate laser equipment. (b) Proof of qualification of the laser equipment operator shall be available and in possession of the operator at all times.
Gases, Vapors, Fumes, Dusts, and Mists **1926.55(b)**	(b) To achieve compliance with paragraph (a) of this section, administrative or engineering controls must first be implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed in this section. Any equipment and technical measures used for this purpose must first be approved for each particular use by a competent industrial hygienist or other technically qualified person. Whenever respirators are used, their use shall comply with § 1926.103.
Hearing Protection **1926.101(b)**	(b) Ear protective devices inserted in the ear shall be fitted or determined individually by competent persons.
Respiratory Protection **1926.103(c)(1)**	(1) Employees required to use respiratory protective equipment approved for use in atmospheres immedicately dangerous to life shall be thoroughly trained in its use. Employees required to use other types of respiratory protective equipment shall be instructed in the use and limitations of such equipment.
Fire Protection **1926.150(a)(5)**	(5) As warranted by the project, the employer shall provide a trained and equipped firefighting organization (Fire Brigade) to assure adequate protection to life. ["Fire brigade" means an organized group of employees that are knowledgeable, trained, and skilled in the safe evacuation of employees during emergency situations and in assisting in firefighting operations.]
1926.150(c)(1)(viii)	(viii) Portable fire extinguishers shall be inspected periodically and maintained in accordance with Maintenance and Use of Portable Fire Extinguishers, NFPA No. 10A-1970. [From ANSI Standard 10A-1970] "1110. The owner or occupant of a property in which fire extinguishers are located has an obligation for the care and use of these extinguishers at all times. By doing so, he is contributing to the protection of life and property. The nameplate(s) and instruction manual should be read and thoroughly understood by all persons who may be expected to use extinguishers. "1120. To discharge this obligation he should give proper attention to the inspection, maintenance, and recharging of this fire protective equipment. He should also train his personnel in the correct use of fire extinguishers on the different types of fires which may occur on his property. "3020. Persons responsible for performing maintenance operations come from three major groups: "Trained industrial safety or maintenance personnel. "Extinguisher service agencies. "Individual owners (e.g., self-employed. . .)."

Signaling 1926.201(a)(2)

(2) Signaling directions by flagmen shall conform to American National Standards Institute D6.1-1971, Manual on Uniform Traffic Control Devices for Streets and Highways.

Power-Operated Hand Tools 1926.302(e)(1) and (12)

(1) Only employees who have been trained in the operation of the particular tool in use shall be allowed to operate a powder-actuated tool.

(12) Powder-actuated tools used by employees shall meet all other applicable requirements of American National Standards Institute, A10.3-1970, Safety Requirements for Explosive-Actuated Fastening Tools.

[From ANSI Standard A10.3-1970] "12. Authorized Instructor. 12.1 Only persons . . . trained and authorized by the tool manufacturer or by an authorized representative of the tool manufacturer shall be qualified to instruct and qualify operators for the manufacturer's powder-actuated tools.

"**12.2** All authorized instructors shall have read and be familiar with this standard, and shall be capable of the following: . . . (5) Training and testing of operators prior to issuing and Qualified Operator's Card.

"**12.4** A list of all manufacturer-authorized instructors authorized to instruct and qualify operators shall be maintained by the tool manufacturer and be made available to the regulating body having jurisdiction upon request.

"**13.** Qualified Operator. 13.1 The operator . . . shall be trained by an authorized instructor to be familiar with the provisions of this standard and the instructions provided by the manufacturer for operation and maintenance, and to be capable of the following:

"(1) Cleaning the tool correctly.

"(2) Recognizing any worn or damaged parts or defective operation.

"(3) Recognizing the number-color code system used in this standard to identify power load levels. In the event the operator is unable to distinguish the colors used, he shall be given special instruction to enable him to avoid error.

"(4) Using the tool correctly within the limitations of its use and demonstrating his competence by operating the tool in the presence of the instructor.

"**13.2** After training, the operator shall, to substantiate his competency, satisfactorily complete a written examination provided by the manufacturer of the tool."

Woodworking Tools 1926.304(f)

(f) Other requirements. All woodworking tools and machinery shall meet other applicable requirements of American National Standards Institute, 01.1-1961, Safety Code for Woodworking Machinery.

[From ANSI Standard 01.1-1961] "9.7 Selection and Training of Operators. Before a worker is permitted to operate any woodworking machine, he shall receive instructions in the hazards of the machine and the safe method of its operation. Refer to A9.7 of the Appendix.

"**A9.7** Selection and Training of Operators. Operation of Machines, Tools, and Equipment. General.

"(1) Learn the machine's applications and limitations, as well as the specific potential hazards peculiar to this machine. Follow available operating instructions and safety rules carefully.

"(2) Keep working area clean and be sure adequate lighting is available:

"(3) Do not wear loose clothing, gloves, bracelets, necklaces, or ornaments. Wear face, eye, ear, respiratory, and body protection devices, as indicated for the operation or environment.

"(4) Do not use cutting tools larger or heavier than the machine is designed to accommodate. Never operate a cutting tool at greater speed than recommended.

"(5) Keep hands well away from saw blades and other cutting tools. Use a push stock or push block to hold or guide the work when working close to cutting tool.

"(6) Whenever possible, use properly locked clamps, jig, or vise to hold the work.

"(7) Combs (feather boards) shall be provided for use when an applicable guard cannot be used.

"(8) Never stand directly in line with a horizontally rotating cutting tool. This is particularly true when first starting a new tool, or a new tool is initially installed on the arbor.

"(9) Be sure the power is disconnected from the machine before tools are serviced.

"(10) Never leave the machine with the power on.

"(11) Be positive that hold-downs and antikickback devices are positioned properly, and that the workpiece is being fed through the cutting tool in the right direction.

"(12) Do not use a dull, gummy, bent, or cracked cutting tool.

"(13) Be sure that keys and adjusting wrenches have been removed before turning power on.

"(14) Use only accessories designed for the machine.

"(15) Adjust the machine for minimum exposure of cutting tool necessary to perform the operation."

Gas Welding and Cutting 1926.350(d)(1) through (6)

(d) Use of fuel gas. The employer shall thoroughly instruct employees in the safe use of fuel gas as follows:

(1) Before a regulator to a cylinder valve is connected, the valve shall be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might otherwise enter the regulator.) The person cracking the valve shall stand to one side of the outlet, not in front of it. The valve of a fuel gas cylinder shall not be cracked where the gas would reach welding work, sparks, flame, or other possible sources of ignition.

(2) The cylinder valve shall always be opened slowly to prevent damage to the regulator. For quick closing, valves on fuel gas cylinders shall not be opened more than 1½ turns. When a special wrench is required, it shall be left in position on the stem of the valve while the cylinder is in use so that the fuel gas flow can be shut off quickly in case of an emergency. In the case of manifolded or coupled cylinders, at least one such wrench shall always be available for immediate use. Nothing shall be placed on top of a fuel gas cylinder, when in use, which may damage the safety device or interfere with the quick closing of the valve.

(3) Fuel gas shall not be used from cylinders through torches or other devices which are equipped with shutoff valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.

(4) Before a regulator is removed from a cylinder valve, the cylinder valve shall always be closed and the gas released from the regulator.

(5) If, when the valve on a fuel gas cylinder is opened, there is found to be a leak around the valve stem, the valve shall be closed and the gland nut tightened. If this action does not stop the leak, the use of the cylinder shall be discontinued, and it shall be properly tagged and removed from the work area. In the event that fuel gas should leak from the cylinder valve, rather than from the valve stem, and the gas cannot be shut off, the cylinder shall be properly tagged and removed from the work area. If a regulator attached to a cylinder valve will effectively stop a leak through the valve seat, the cylinder need not be removed from the work area.

(6) If a leak should develop at a fuse plug or other safety device, the cylinder shall be removed from the work area.

1926.350(j)

(j) Additional rules. For additional details not covered in this subpart, applicable technical portions of American National Standards Institute, Z49.1-1967, Safety in Welding and Cutting, shall apply.

[From ANSI Standard Z49.1-1967] "9.5.2.6 Fire Watch Duties. Fire watchers shall be trained in the use of fire extinguishing equipment. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch shall be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires."

Arc Welding and Cutting
1926.351(d)(1) through (5)

(d) Operating instructions. Employers shall instruct employees in the safe means of arc welding and cutting as follows:

(1) When electrode holders are to be left unattended, the electrodes shall be removed and the holders shall be so placed or protected that they cannot make electrical contact with employees or conducting objects.

(2) Hot electrode holders shall not be dipped in water; to do so may expose the arc welder or cutter to electric shock.

(3) When the arc welder or cutter has occasion to leave his work or to stop work for any appreciable length of time, or when the arc welding or cutting machine is to be moved, the power supply switch to the equipment shall be opened.

(4) Any faulty or defective equipment shall be reported to the supervisor.

(5) Other requirements, as outlined in Article 630, National Electrical Code, NFPA 70-1971; ANSI C1-1971 (Rev. of 1968), Electric Welders, shall be used when applicable.

Fire Prevention
1926.352(e)

(e) When the welding, cutting, or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire while the actual welding, cutting, or heating operation is being performed, and for a sufficient period of time after completion of the work to ensure that no possibility of fire exists. Such personnel shall be instructed as to the specific anticipated fire hazards and how the firefighting equipment provided is to be used.

Welding, Cutting and Heating in Way of Preservative Coatings
1926.354(a)

(a) Before welding, cutting, or heating is commenced on any surface covered by a preservative coating whose flammability is not known, a test shall be made by a competent person to determine its flammability. Preservative coatings shall be considered to be highly flammable when scrapings burn with extreme rapidity.

Ground-Fault Protection
1926.400(h)(3)(ii)

(ii) The employer shall designate one or more competent persons (as defined in § 1926.32(f)) to implement the program.

Scaffolding
1926.451(a)(3)

(3) No scaffold shall be erected, moved, dismantled, or altered except under the supervision of competent persons.

1926.451(b)(16)

(16) All wood pole scaffolds 60 feet or less in height shall be constructed and erected in accordance with Tables L-4 to 10. If they are over 60 feet in height, they shall be designed by a qualified engineer competent in this field, and it shall be constructed and erected in accordance with such design.

1926.451(c)(4) and (5)

(4) Tube and coupler scaffolds shall be limited in heights and working levels to those permitted in Tables L-10, 11, and 12. Drawings and specifications of all tube and coupler scaffolds above the limitations in Tables L-10, 11, and 12 shall be designed by a qualified engineer competent in this field.

(5) All tube and coupler scaffolds shall be constructed and erected to support four times the maximum intended loads, as set forth in Tables L-10, 11, and 12, or as set forth in the specifications by a licensed professional engineer competent in this field.

1926.451(d)(9)

(9) Drawings and specifications for all frame scaffolds over 125 feet in height above the base plates shall be designed by a registered professional engineer.

1926.451(g)(3)

(3) Unless outrigger scaffolds are designed by a registered professional engineer competent in this field, they shall be constructed and erected in accordance with Table L-13. Outrigger scaffolds, designed by a registered professional engineer, shall be constructed and erected in accordance with such design.

1926.451(h)(6) and (14)

(h) Masons' adjustable multiple-point suspension scaffolds.

(6) Where the overhang exceeds 6 feet 6 inches, outrigger beams shall be composed of stronger beams or multiple beams and be installed under the supervision of a competent person.

(14) Each scaffold shall be installed or relocated under the supervision of a competent person.

1926.451(k)(10)

(k) Single-point adjustable suspension scaffolds.

(10) For additional details not covered in this paragraph, applicable technical portions of American National Standards Institute, A120.1–1970, Power-Operated Devices for Exterior Building Maintenance Powered Platforms, shall be used.

[From ANSI Standard A120.1–1970] "31.1 Qualified Operators. Powered platform shall be operated only by qualified persons who have been instructed in the operation and in the inspection, with respect to safe operating condition of the particular powered platform to be operated."

Cranes and Derricks
1926.550(a)(1), (5), and (6)

(1) The employer shall comply with the manufacturer's specifications and limitations applicable to the operation of any and all cranes and derricks. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a qualified engineer competent in this field and such determinations will be appropriately documented and recorded. Attachments used with cranes shall not exceed the capacity, rating, or scope recommended by the manufacturer.

(5) The employer shall designate a competent person who shall inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired, or defective parts replaced, before continued use.

(6) A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. The employer shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment.

Material Hoists, Personnel Hoists, and Elevators
1926.552(a)(1)

(1) The employer shall comply with the manufacturer's specifications and limitations applicable to the operation of all hoists and elevators. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a professional engineer competent in the field.

1926.552(b)(7)

(7) All material hoist towers shall be designed by a licensed professional engineer.

1926.552(c)(15) and (17) (i)

(c) Personnel hoists.

(15) Following assembly and erection of hoists, and before being put in service, an inspection and test of all functions and safety devices shall be made under the supervision of a competent person. A similar inspection and test is required following major alteration of an existing installation. All hoists shall be inspected and tested at not more than 3-month intervals. Records shall be maintained and kept on file for the duration of the job.

(17)(i) Personnel hoists used in bridge tower construction shall be approved by a registered professional engineer and erected under the supervision of a qualified engineer competent in this field.

Material Handling Equipment
1926.602(c)(1)(vi)

(c) Lifting and hauling equipment (other than equipment covered under Subpart N of this part).

(1)(vi) All industrial trucks in use shall meet the applicable requirements of design, construction, stability, inspection, testing, maintenance, and operation, as defined in American National Standards Institute B56.1–1969, Safety Standards for Powered Industrial Trucks.

[From ANSI Standard B56.1–1969] "602 Operator Training. Only trained and authorized operators shall be permitted to operate a powered industrial truck. Methods shall be devised to train operators in the safe operation of powered industrial trucks. Badges or other visual indication of the operators' authorization should be displayed at all times during work period."

Site Clearing **1926.604(a)(1)**	(1) Employees engaged in site clearing shall be protected from hazards of irritant and toxic plants and suitably instructed in the first aid treatment available.
General Protection Requirements (Excavations, Trenching, and Shoring) **1926.650(i)**	(i) Daily inspections of excavations shall be made by a competent person. If evidence of possible cave-ins or slides is apparent, all work in the excavation shall cease until the necessary precautions have been taken to safeguard the employees.
Specific Excavation Requirements **1926.651(d), (f), (k), (o), and (x)**	(d) Excavations shall be inspected by a competent person after every rainstorm or other hazard-increasing occurrence, and the protection against slides and cave-ins shall be increased if necessary. (f) Supporting systems, i.e., piling, cribbing, shoring, etc., shall be designed by a qualified person and meet accepted engineering requirements [requirements or practices which are compatible with standards required by a registered architect, a registered professional engineer, or other duly licensed or recognized authority]. . . . (k) Support systems shall be planned and designed by a qualified person when excavation is in excess of 20 feet in depth, adjacent to structures or improvements, or subject to vibration or ground water. (o) If the stability of adjoining buildings or walls is endangered by excavations, shoring, bracing, or underpinning shall be provided as necessary to insure their safety. Such shoring, bracing, or underpinning shall be inspected daily or more often, as conditions warrant, by a competent person and the protection effectively maintained. (x) Where ramps are used for employees or equipment, they shall be designed and constructed by qualified persons in accordance with accepted engineering requirements.
Forms and Shoring **1926.701(a)(4)**	(4) Imposition of any construction loads on the partially completed structure shall not be permitted unless such loading has been considered in the design and approved by the engineer-architect.
1926.701(d)(3)	(3) Whenever single post shores are used in more than one tier, the layout shall be designed and inspected by a structural engineer.
Bolting, Riveting, Fitting-Up, and Plumbing-Up **1926.752(d)(4)**	(4) Plumbing-up guys shall be removed only under the supervision of a competent person.
Tunnels and Shafts **1926.800(c)(2)(iii) and (iv)**	(iii) When there has been a failure of ventilation and ventilation has been restored in a reasonable time, all places where flammable gas may have accumulated shall be examined by a competent person and determined to be free of flammable gas before power is restored and work resumed. (iv) When the main fan or fans have been shut down with all employees out of the adit, tunnel, or shaft, no employee, other than those qualified to examine the adit, tunnel, or shaft, or other authorized employee, shall go underground until the fans have been started, the work areas examined for gas and other hazards, and declared safe.
1926.800(e)(1)(xii)	(xii) At tunnel operations, employing 25 or more employees at one time underground, at least two rescue crews (10 employees divided between shifts) shall be trained annually in rescue procedures, in the use, care, and limitations of oxygen breathing apparatus, and the use and maintenance of firefighting equipment. Not less than one crew (5 employees) shall be trained at smaller operations.
1926.800(k)(1)	(1) Equipment that is to be used during a shift shall be inspected by a competent person each shift. Equipment defects affecting safety shall be corrected before the equipment is used.

Compressed Air
1926.803(a)(1) and (2)

(1) There shall be present, at all times, at least one competent person designated by and representing the employer, who shall be familiar with this subpart in all respects, and responsible for full compliance with these and other applicable subparts.

(2) Every employee shall be instructed in the rules and regulations which concern his safety or the safety of others.

1926.803(b)(1) and (10)(xii)

(1) There shall be retained one or more licensed physicians familiar with and experienced in the physical requirements and the medical aspects of compressed air work and the treatment of decompression illness. He shall be available at all times while work is in progress in order to provide medical supervision of employees employed in compressed air work. He shall himself be physically qualified and be willing to enter a pressurized environment.

(10) The medical lock shall: (xii) Be in constant charge of an attendant under the direct control of the retained physician. The attendant shall be trained in the use of the lock and suitably instructed regarding steps to be taken in the treatment of employee exhibiting symptoms compatible with a diagnosis of decompression illness.

1926.803(e)(1)

(1) Every employee going under air pressure for the first time shall be instructed on how to avoid excessive discomfort.

1926.803(h)(1)

(1) At all times there shall be a thoroughly experienced, competent, and reliable person on duty at the air control valves as a gauge tender who shall regulate the pressure in the working areas. During tunneling operations, one gauge tender may regulate the pressure in not more than two headings: Provided, that the gauge and controls are all in one location. In caisson work, there shall be a gauge tender for each caisson.

Preparatory Operations
1926.850(a)

(a) Prior to permitting employees to start demolition operations, an engineering survey shall be made, by a competent person, of the structure to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be similarly checked. The employer shall have in writing evidence that such a survey has been performed.

Chutes
1926.852(c)

(c) A substantial gate shall be installed in each chute at or near the discharge end. A competent employee shall be assigned to control the operation of the gate, and the backing and loading of trucks.

Mechanical Demolition
1926.859(g)

(g) During demolition, continuing inspections by a competent person shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material. No employee shall be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.

General Provisions (Blasting and Use of Explosives)
1926.900(a)

(a) The employer shall permit only authorized and qualified persons to handle and use explosives.

1926.900(k)(3)(i)

(i) The prominent display of adequate signs, warning against the use of mobile radio transmitters, on all roads within 1,000 feet of blasting operations. Whenever adherence to the 1,000-foot distance would create an operational handicap, a competent person shall be consulted to evaluate the particular situation, and alternative provisions may be made which are adequately designed to prevent any premature firing of electric blasting caps. A description of any such alternatives shall be reduced to writing and shall be certified as meeting the purposes of this subdivision by the competent person consulted. The description shall be maintained at the construction site during the duration of the work, and shall be available for inspection by representatives of the Secretary of Labor.

1926.900(q)

(q) All loading and firing shall be directed and supervised by competent persons thoroughly experienced in this field.

Blaster Qualifications
1926.901(c), (d), and (e)

(c) A blaster shall be qualified, by reason of training, knowledge, or experience, in the field of transporting, storing, handling, and use of explosives, and have a working knowledge of State and local laws and regulations which pertain to explosives.

(d) Blasters shall be required to furnish satisfactory evidence of competency in handling explosives and performing in a safe manner the type of blasting that will be required.

(e) The blaster shall be knowledgeable and competent in the use of each type of blasting method used.

Surface Transportation of Explosives
1926.902(b) and (i)

(b) Motor vehicles or conveyances transporting explosives shall only be driven by, and be in the charge of, a licensed driver who is physically fit. He shall be familiar with the local, State, and Federal regulation governing the transportation of explosives.

(i) Each vehicle used for transportation of explosives shall be equipped with a fully charged fire extinguisher, in good condition. An Underwriters Laboratory-approved extinguisher of not less than 10-ABC rating will meet the minimum requirement. The driver shall be trained in the use of the extinguisher on his vehicle.

Firing the Blast
1926.909(a)

(a) A code of blasting signals equivalent to Table U–1, shall be posted on one or more conspicuous places at the operation, and all employees shall be required to familiarize themselves with the code and conform to it. Danger signs shall be placed at suitable locations.

Table U–1

WARNING SIGNAL—A 1-minute series of long blasts 5 minutes prior to blast signal.
BLAST SIGNAL—A series of short blasts 1 minute prior to the shot.
ALL CLEAR SIGNAL—A prolonged blast following the inspection of blast area.

General Requirements (Power Transmission and Distribution)
1926.950(d)(1)(ii), (vi), and (vii)

(1) When deenergizing lines and equipment operated in excess of 600 volts, and the means of disconnecting from electric energy is not visibly open or visibly locked out, the provisions of subdivisions (i) through (vii) of this subparagraph shall be complied with:

(ii) Notification and assurance from the designated employee [a qualified person delegated to perform specific duties under the conditions existing] shall be obtained that:

(a) All switches and disconnectors through which electric energy may be supplied to the particular section of line or equipment to be worked have been deenergized;

(b) All switches and disconnectors are plainly tagged indicating that men are at work;

(c) And that where design of such switches and disconnectors permits, they have been rendered inoperable.

(vi) When more than one independent crew requires the same line or equipment to be deenergized, a prominent tag for each such independent crew shall be placed on the line or equipment by the designated employee in charge.

(vii) Upon completion of work on deenergized lines or equipment, each designated employee in charge shall determine that all employees in his crew are clear, that protective grounds installed by his crew have been removed, and he shall report to the designated authority that all tags protecting his crew may be removed.

1926.950(d)(2)(ii)

(2) When a crew working on a line or equipment can clearly see that the means of disconnecting from electric energy are visibly open or visibly locked-out, the provisions of subdivisions (i) and (ii) of this subparagraph shall apply:

(ii) Upon completion of work on deenergized lines or equipment, each designated employee in charge shall determine that all employees in his crew are clear, that protective grounds installed by his crew have been removed, and he shall report to the designated authority that all tags protecting his crew may be removed.

1926.950(e)(1) and (2)	**(1)** The employer shall provide training or require that his employees are knowledgeable and proficient in: **(i)** Procedures involving emergency situations, and **(ii)** First-aid fundamentals including resuscitation. **(2)** In lieu of subparagraph (1) of this paragraph the employer may comply wth the provisions of §1926.50(c) regarding first-aid requirements.
Overhead Cranes **1926.955(b)(3)(i)**	**(3)(i)** A designated employee shall be used in directing mobile equipment adjacent to footing excavations.
1926.955(b)(8) and (d)(i)	**(8)** A designated employee shall be utilized to determine that required clearance is maintained in moving equipment under or near energized lines. **(1)** Prior to stringing parallel to an existing energized transmission line a competent determination shall be made to ascertain whether dangerous induced voltage buildups will occur, particularly during switching and ground fault conditions. When there is a possibility that such dangerous induced voltage may exist the employer shall comply with the provisions of subparagraphs **(2)** through **(9)** of this paragraph in addition to the provisions of paragraph **(c)** of this §1926.955, unless the line is worked as energized.
1926.955(e)(1) and (4)	**(1)** Employees shall be instructed and trained in the live-line bare-hand technique and the safety requirements pertinent thereto before being permitted to use the technique on energized circuits. **(4)** All work shall be personally supervised by a person trained and qualified to perform live-line bare-hand work.
Underground Lines **1926.956(b)(1)**	**(1)** While work is being performed in manholes, an employee shall be available in the immediate vicinity to render emergency assistance as may be required. This shall not preclude the employee in the immediate vicinity from occasionally entering a manhole to provide assistance, other than emergency. This requirement does not preclude a qualified employee [a person who by reason of experience or training is familiar with the operation to be performed and the hazards involved], working alone, from entering for brief periods of time, a manhole where energized cables or equipment are in service, for the purpose of inspection, housekeeping, taking readings, or similar work if such work can be performed safely.
Construction in Energized Substations **1926.957(a)(1)**	**(1)** When construction work is performed in an energized substation, authorization shall be obtained from the designated, authorized person [a qualified person delegated to perform specific duties under the conditions existing] before work is started.
1926.957(d)(1)	**(1)** Work on or adjacent to energized control panels shall be performed by designated employees.
1926.957(e)(1)	**(1)** Use of vehicles, gin poles, cranes, and other equipment in restricted or hazardous areas shall at all times be controlled by designated employees.

Agricultural Training Requirements

The following training requirements have been excerpted from Title 29, Code of Federal Regulations Part 1928. Note that in addition to these requirements, Part 1910, relating to general industry, also contains applicable training standards.

Subject and Standard Number	Training Requirement
Roll-Over Protective Structures (ROPS) For Tractors Used in Agricultural Operations 1928.51(d)	**(d)** Operating instructions. Every employee who operates an agricultural tractor shall be informed of the operating practices contained in Exhibit A of this part and of any other practices dictated by the work environment. Such information shall be provided at the time of initial assignment and at least annually thereafter. **Exhibit A—Employee Operating Instructions** **1.** Securely fasten your seat belt if the tractor has a ROPS. **2.** Where possible, avoid operating the tractor near ditches, embankments, and holes. **3.** Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces. **4.** Stay off slopes too steep for safe operation. **5.** Watch where you are going, especially at row ends, on roads, and around trees. **6.** Do not permit others to ride. **7.** Operate the tractor smoothly—no jerky turns, starts, or stops. **8.** Hitch only to the drawbar and hitch points recommended by tractor manufacturers. **9.** When tractor is stopped, set brakes securely and use park lock if available.
Guarding of Farm Field Equipment, Farmstead Equipment, and Cotton Gins 1928.57(a)(6)(i) through (v)	**(6)** Operating instructions. At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all covered equipment with which he is or will be involved, including at least the following safe operating practices: **(i)** Keep all guards in place when the machine is in operation; **(ii)** Permit no riders on farm field equipment other than persons required for instruction or assistance in machine operation; **(iii)** Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning, or unclogging the equipment, except where the machine must be running to be properly serviced or maintained, in which case the employer shall instruct employees as to all steps and procedures which are necessary to safely service or maintain the equipment; **(iv)** Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine; **(v)** Lock out electrical power before performing maintenance or service on farmstead equipment.

1928.57(d)(1)(viii)

(d) Cotton ginning equipment. **(1)** Power transmission components.

(viii) In power plants and power development rooms where access is limited to authorized personnel, guard railings may be used in place of guards or guarding by location. Authorized employees having access to power plants and power development rooms shall be instructed in the safe operation and maintenance of the equipment in accordance with paragraph (a)(6) of this section.

Federal Employee Programs Training Requirements

The following training requirements have been excerpted from Title 29, Code of Federal Regulations Part 1960.

Note that in addition to these requirements, Part 1910, relating to general industry, also contains applicable training standards.

Subject and Standard Number	Training Requirement
Financial Management 1960.7(c)(1)	(c) Appropriate resources for an agency's occupational safety and health program shall include, but not be limited to: (1) Sufficient personnel to implement and administer the program at all levels, including necessary administrative costs such as training, travel, and personal protective equipment.
Qualifications of Safety and Health Inspectors and Agency Inspections 1960.25(a)	(a) Executive Order 12196 requires that each Agency utilize as inspectors "personnel with equipment and competence to recognize hazards." Inspections shall be conducted by inspectors qualified to recognize and evaluate hazards of the working environment and to suggest general abatement procedures. Safety and health specialists as defined in §1960.2(s), with experience and/or up-to-date training in occupational safety and health hazard recognition and evaluation are considered as meeting the qualifications of safety and health inspectors. For those working environments where there are less complex hazards, such safety and health specializations as cited above may not be required, but inspectors in such environments shall have sufficient documented training and/or experience in the safety and health hazards of the workplace involved to recognize and evaluate those particular hazards and to suggest general abatement procedures. All inspection personnel must be provided the equipment necessary to conduct a thorough inspection of the workplace involved.
Safety and Health Services 1960.34(e)(1)	(e) Safety and health services. GSA will operate and maintain for user agencies the following services: (1) Listings in the "Federal Supply Schedule" of safety and health services and equipment which are approved for use by agencies when needed. Examples of such services are: Workplace inspections, training, industrial hygiene surveys, asbestos bulk sampling, and mobile health testing; examples of such equipment are: personal protective equipment and apparel, safety devices, and environmental monitoring equipment.
Agency Responsibilities 1960.39(b)	(b) Agencies shall provide all committee members appropriate training as required by subpart H of this part.
Training of Top Management Officials 1960.54	Each agency shall provide top management officials with orientation and other learning experiences which will enable them to manage the occupational safety and health programs of their agencies. Such orientation should include coverage of section 19 of the Act, Executive Order 12196, the requirements of this part, and the agency safety and health program.

Training of Supervisors
1960.55

(a) Each agency shall provide occupational safety and health training for supervisory employees that includes: supervisory responsibility for providing and maintaining safe and healthful working conditions for employees, the agency occupational safety and health program, section 19 of the Act, Executive Order 12196, this part, occupational safety and health standards applicable to the assigned workplaces, agency procedures for reporting hazards, agency procedures for reporting and investigating allegations of reprisal, and agency procedures for the abatement of hazards, as well as other appropriate rules and regulations.

(b) This supervisory training should include introductory and specialized courses and materials which will enable supervisors to recognize and eliminate, or reduce, occupational safety and health hazards in their working units. Such training shall also include the development of requisite skills in managing the agency's safety and health program within the work unit, including the training and motivation of subordinates toward assuring safe and healthful work practices.

Training of Safety and Health Specialists
1960.56

(a) Each agency shall provide occupational safety and health training for safety and health specialists through courses, laboratory experiences, field study, and other formal learning experiences to prepare them to perform the necessary technical monitoring, consulting, testing, inspecting, designing, and other tasks related to program development and implementation, as well as hazard recognition, evaluation and control, equipment and facility design, standards, analysis of accident, injury, and illness data, and other related tasks.

(b) Each agency shall implement career development programs for their occupational safety and health specialists to enable the staff to meet present and future program needs of the agency.

Training of Safety And Health Inspectors
1960.57

Each agency shall provide training for safety and health inspectors with respect to appropriate standards, and the use of appropriate equipment and testing procedures necessary to identify and evaluate hazards and suggest general abatement procedures during or following their assigned inspections, as well as preparation of reports and other documentation to support the inspection findings.

Training of Collateral Duty Safety and Health Personnel and Committee Members
1960.58

Within six months after October 1, 1980, or on appointment of an employee to a collateral duty position or to a committee, each agency shall provide training for collateral duty safety and health personnel and all members of certified occupational safety and health committees commensurate with the scope of their assigned responsibilities. Such training shall include: The agency occupational safety and health program; section 19 of the Act; Executive Order 12196; this part; agency procedures for the reporting, evaluation and abatement of hazards; agency procedures for reporting and investigating allegations of reprisal, the recognition of hazardous conditions and environments; identification and use of occupational safety and health standards, and other appropriate rules and regulations.

Training of Employees and Employee Representatives
1960.59

(a) Each agency shall provide appropriate safety and health training for employees including specialized job safety and health training appropriate to the work performed by the employee, for example: Clerical; printing; welding; crane operation; chemical analysis, and computer operations. Such training also shall inform employees of the agency occupational safety and health program, with emphasis on their rights and responsibilities.

(b) Occupational safety and health training for employees of the agency who are representatives of employee groups, such as labor organizations which are recognized by the agency, shall include both introductory and specialized courses and materials that will enable such groups to function appropriately in ensuring safe and healthful working conditions and practices in the workplace and enable them to effectively assist in conducting workplace safety and health inspections. Nothing in this paragraph shall be construed to alter training provisions provided by law, Executive Order, or collective bargaining arrangements.

Training Assistance
1960.60

(a) Agency heads may seek training assistance from the Secretary of Labor, the National Institute for Occupational Safety and Health and other appropriate sources.

(b) After the effective date of Executive Order 12196, the Secretary shall, upon request and with reimbursement, conduct orientation for Designated Agency Safety and Health Officials and/or their designees which will enable them to manage the occupational safety and health programs of their agencies. Such orientation shall include coverage of section 19 of the Act, Executive Order 12196, and the requirements of this part.

(c) Upon request and with reimbursement, the Department of Labor shall provide each agency with training materials to assist in fulfilling the training needs of this subpart, including resident and field training courses designed to meet selected training needs of agency safety and health specialists, safety and health inspectors, and collateral duty safety and health personnel. These materials and courses in no way reduce each agency's responsibility to provide whatever specialized training is required by the unique characteristics of its work.

(d) In cooperation with OPM, the Secretary will develop guidelines and/or provide materials for the safety and health training programs for high-level managers, supervisors, members of committees, and employee representatives.

Role of the Secretary
1960.85(b)

(b) The Secretary shall provide leadership and guidance and make available necessary equipment, supplies, and staff services to the Field Federal Safety and Health Councils to assist them in carrying out their responsibilities. The Secretary shall also provide consultative and technical services to field councils. These services shall involve aid in any phase of developing and planning programs; and in sponsoring, conducting or supporting safety and health training courses.

Objectives
1960.87(d)

(d) To promote coordination, cooperation, and sharing of resources and expertise to aid agencies with inadequate or limited resources. These objectives can be accomplished in a variety of ways. For example, field councils could organize and conduct training programs for employee representatives, collateral duty and professional safety and health personnel, coordinate or promote programs for inspections, or, on request, conduct inspections and evaluations of the agencies' safety and health programs.

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